



Consulting Arborists and Urban Forest Management

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July 9, 2015

Planning and Building
City of West Linn
22500 Salamo Road #1000
West Linn, Oregon 97068

Re: Arborist Report and Tree Preservation Plan for Tannler Drive Mixed Use Development
West Linn, Oregon
Project No. MHA1472 Tannler Drive

Please find enclosed the Arborist Report and Tree Preservation Plan for the Tannler Drive Mixed Use Development project located along the west side of Tannler Drive just north of the intersection with Blankenship Road in West Linn, Oregon. Please contact us if you have questions or need any additional information.

Respectfully,
Morgan Holen & Associates, LLC

Morgan E. Holen, Owner
ISA Certified Arborist, PN-6145A
ISA Tree Risk Assessment Qualified
Forest Biologist



Arborist Report and Tree Preservation Plan

Tannler Drive Mixed Use Development
West Linn, Oregon

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Tannler Drive Mixed Use Development – West Linn, Oregon
Arborist Report and Tree Preservation Plan
July 9, 2015

MHA1472

Purpose

This Arborist Report and Tree Preservation Plan for the Tannler Drive Mixed Use Development project in West Linn, Oregon, is provided pursuant to City of West Linn Community Development Code Chapter 55, Municipal Code Sections 8.500 and 8.600, and the West Linn Tree Technical Manual. This report describes the existing trees located on and directly adjacent to the project site, as well as recommendations for tree removal, retention and protection. This report is based on observations made by International Society of Arboriculture (ISA) Certified Arborist (PN-6145A) and Qualified Tree Risk Assessor Morgan Holen during site visits conducted on April 8, 2015 (which included a site meeting with the City Arborist Mike Perkins) and April 28, 2015, and site plan coordination with OTAK.

Scope of Work and Limitations

Morgan Holen & Associates, LLC was contracted by ConAm Properties, LLC to collect tree inventory data for individual trees measuring six inches and larger in diameter and to develop an arborist report and tree preservation plan for the project. Site plans were provided by OTAK illustrating the location of existing trees and potential construction impacts.

Visual Tree Assessment (VTA) was performed on individual trees located on and adjacent to the project site. VTA is the standard process whereby the inspector visually assesses the tree from a distance and up close, looking for defect symptoms and evaluating overall condition and vitality of individual trees. Trees were evaluated in terms of general condition and potential construction impacts. Following the inventory fieldwork, we coordinated with ConAm Properties and OTAK to discuss recommendations for tree protection.

The client may choose to accept or disregard the recommendations contained herein, or seek additional advice. Neither this author nor Morgan Holen & Associates, LLC, have assumed any responsibility for liability associated with the trees on or adjacent to this site.

General Description

The project site is an undeveloped open field with trees scattered along property boundaries and clustered in the northern portion of the site.

Along the eastern boundary, adjacent to Tannler Drive, there is a dense row of trees that appear to have naturally regenerated in the cut slope above the street. These trees include a mix of Douglas-fir (*Pseudotsuga menziesii*), bigleaf maple (*Acer macrophyllum*), black cottonwood (*Populus trichocarpa*), and an occasional madrone (*Arbutus menziesii*). The Douglas-firs are relatively small and some are suppressed by the bigleaf maples and black cottonwoods. The bigleaf maples and madrones generally have poor structure. The black cottonwoods have inherent limitations because the species is fast growing and relatively short-lived; these trees develop brittle wood and can be expected to become increasingly hazardous to the street as they mature.

Along the western boundary, the trees are relatively young and appear to have been planted for landscaping and screening adjacent to the neighboring commercial site.

The most prominent trees are located in the northern portion of the site and include groups of Oregon white oaks (*Quercus garryana*) and some Douglas-firs. These trees are generally in good condition and are most suitable for retention as intact, undisturbed groups.

Tree Inventory

The enclosed tree data provides a complete description of the individual trees and site plan drawings illustrate the location of trees by corresponding point number. In all, 141 existing trees were inventoried, including 11 different tree species. Thirty-six of the inventoried trees are located off-site on neighboring properties. Table 1 provides a summary of the number of inventoried trees by species and location.

Table 1. Number of Inventoried Trees by Species and Location.

Common Name	Species Name	On-site	Off-site	Total	Percent
Austrian pine	<i>Pinus nigra</i>	7	0	7	5%
bingleaf maple	<i>Acer macrophyllum</i>	9	1	10	7%
black cottonwood	<i>Populus trichocarpa</i>	18	6	24	17%
Douglas-fir	<i>Pseudotsuga menziesii</i>	26	12	38	27%
green ash	<i>Fraxinus pennsylvanica</i>	2	0	2	1%
Leyland cypress	<i>Cupressus × leylandii</i>	0	2	2	1%
London planetree	<i>Platanus × acerifolia</i>	6	2	8	6%
Norway maple	<i>Acer platanoides</i>	0	1	1	1%
Oregon white oak	<i>Quercus garryana</i>	36	5	41	29%
pacific madrone	<i>Arbutus menziesii</i>	1	4	5	4%
scots pine	<i>Pinus sylvestris</i>	0	3	3	2%
Total		105	36	141	100%

Oregon white oak, Douglas-fir, and black cottonwood account for 73-percent of the inventoried trees. The Oregon white oaks are located in the northern portion of the site, except for two located off-site to the west. The Douglas-firs and black cottonwoods are primarily located along the eastern boundary, except for eight Douglas-firs located in the northern area. The planted landscape trees along the western boundary consist of Austrian pine (*Pinus nigra*), green ash (*Fraxinus pennsylvanica*), Leyland cypress (*Cupressus × leylandii*), London planetree (*Platanus × acerifolia*), and scots pine (*Pinus sylvestris*) accounting for 15-percent of the inventoried trees. Bingleaf maples and madrones located primarily along the eastern boundary account for 11-percent of the inventoried trees, and one Norway maple (*Acer platanoides*), an invasive species, accounting for the final 1-percent of the inventoried trees is located off-site in the right of way northeast of the project site.

Trees were classified based on general condition as either dead, poor, fair, or good. Of the 141 inventoried trees, one (1%) is dead, 14 (10%) are in poor condition, 62 (44%) are in fair condition, and 64 (45%) are in good condition.

Significant trees will be determined by the City Arborist. Based on our evaluation of the size, type, location, health, and long term survivability of the individual trees located on-site and coordination with the City's arborist during the April 8, 2015 site visit, 37 of the 105 on-site trees were identified as potentially significant.

Tree Preservation Plan

We coordinated with the project team to discuss trees suitable for preservation in terms of potential construction impacts and site plan alternatives. Proposed tree removal is mainly for the purposes of construction, including grading and building, although several trees are recommended for removal because of poor or hazardous condition. Table 2 provides a summary of the number of inventoried trees by treatment recommendation and significance.

Table 2. Number of Inventoried Trees by Treatment Recommendation and Significance.

Treatment	Remove	Retain	Protect	Total
Potentially Significant Trees	11	26	-	37
Non-Significant Trees	67	1	-	68
Off-Site Trees	-	-	36	36
Total	78	27	36	141

The 36 inventoried trees located off-site on neighboring properties will be protected during construction. Tree protection measures should be installed at a minimum of 10-feet beyond the dripline for eight off-site trees located near the northern boundary of the project site. The two Oregon white oaks located off-site to the west are in close proximity to proposed development, including trees #53 and #53b; protection measures at the dripline of tree #53 will provide sufficient protection, and protection measures should be installed at the limits of disturbance at tree #53b and construction that is necessary beneath the dripline should be performed only under the guidance of a Qualified Arborist. Trees located on the off-site lot to the south are less suitable for long-term preservation, but will not be impacted by the proposed development and adequate protection is possible; this includes seven trees near the southwest corner that can be protected at the limits of disturbance for storm water swale and sidewalk construction and 19 trees on the eastern boundary that can be protected adjacent to tree #92 at the limits of disturbance for retaining wall construction. Additional tree protection recommendations are provided in the next section.

Of the 105 on-site trees, 78 are planned for removal, including 11 potentially significant trees that must be removed for grading, building, and parking lot, retaining wall, and storm water swale construction. The remaining 27 on-site trees are planned for retention in the northern portion of the site, of which 26 are classified as potentially significant (including 24 Oregon white oaks and three Douglas-firs). The one non-significant tree planned for preservation in the northern area is an 18-inch diameter Oregon white oak with twig dieback and poor vigor that is nevertheless suitable for preservation within the intact group of adjacent oaks (tree # 21). The 27 trees in the northern area are excellent candidates for preservation and adequate protection is possible at 10-feet beyond the dripline as required by Community Development Code Section 55.100.

Tree Protection Standards

Trees to be protected will need special consideration to assure their protection during construction. It is the Client's responsibility to implement this plan and to monitor the construction process. The project arborist will be available during construction to help with tree related issues as needed. Tree protection measures include:

Before Construction

1. **Preconstruction Conference.** The project arborist should be on site to discuss methods of tree removal and tree protection prior to any construction.
2. **Tree Protection Zone.** The project arborist should designate the Tree Protection Zone (TPZ) for each tree to be protected. Where feasible, the size of the TPZ should be established at the dripline of the tree plus 10-feet. Alternatively, the TPZ should be established at the dripline of protected trees. Where infrastructure must be installed closer to the tree(s), the TPZ may be established within the dripline area if the project arborist, in coordination with the City Arborist, determines that the tree(s) will not be unduly damaged. The location of TPZs should be shown on construction drawings.
3. **Protection Fencing.** Protection fencing should serve as the tree protection zone and should be erected before demolition, grubbing, grading, or construction begins. All trees to be retained should be protected by six-foot-high chain link fences installed at the edge of the TPZ. Protection fencing should be secured to two-inch diameter galvanized iron posts, driven to a depth of at least two feet, placed no further than 10-feet apart. If fencing is located on pavement, posts may be supported by an appropriate grade level concrete base. Protection fencing should remain in place until final inspection of the project permit, or in consultation with the project arborist.
4. **Signage.** An 8.5x11 –inch sign stating, “WARNING: Tree Protection Zone,” should be displayed on each protection fence at all times.
5. **Designation of Cut Trees.** Trees to be removed should be clearly marked with construction flagging, tree-marking paint, or other methods approved in advanced by the project arborist. Trees should be carefully removed so as to avoid either above or below ground damage to trees planned for preservation. Roots of stumps that are adjacent to retained trees should be carefully severed prior to stump extraction or stumps should remain in the ground.
6. **Verification of Tree Protection Measures.** Prior to commencement of construction, the project arborist should verify in writing to the City Arborist that tree protection fencing has been satisfactorily installed.

During Construction

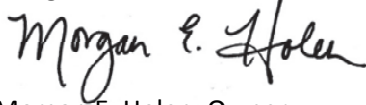
7. **Tree Protection Zone Maintenance.** The protection fencing should not be moved, removed, or entered by equipment except under direction of the project arborist, in coordination with the City Arborist.
8. **Storage of Material or Equipment.** The contractor should not store materials or equipment within the TPZ.
9. **Excavation within the TPZ.** Excavation within the TPZ should be avoided if alternatives are available. If excavation within the TPZ is unavoidable, the project arborist should evaluate the proposed excavation to determine methods to minimize impacts to trees. This can include tunneling, hand digging or other approaches. All construction within the TPZ should be under the on-site technical supervision of the project arborist, in coordination with the City Arborist.
10. **Quality Assurance.** The project arborist should supervise proper execution of this plan during construction activities that could encroach on retained trees. Tree protection site inspection monitoring reports should be provided to the Client and City on a regular basis throughout construction.

Post Construction

11. **Final Report.** After the project has been completed, the project arborist should provide a final report to the developer and the City. The final report should include concerns about any trees negatively impacted during construction, and describe the measures needed to maintain and protect the remaining trees for a minimum of two years after project completion.

Please contact us if you have questions or need any additional information. Thank you for choosing Morgan Holen & Associates, LLC, to provide consulting arborist services for the Tannler Drive Mixed Use Development project.

Thank you,
Morgan Holen & Associates, LLC



Morgan E. Holen, Owner
ISA Certified Arborist, PN-6145A
ISA Tree Risk Assessment Qualified
Forest Biologist

Enclosures: MHA1472 Tannler and Blankenship – Tree Data 4-28-15 Rev. 7-9-15

No.	Common Name	Species Name	DBH*	C-Rad^	Cond#	Defects and Comments	Sig?	Treatment
1	Norway maple	<i>Acer platanoides</i>	10	12	F	invasive species, some included bark, street tree	Off-site	protect
1b	bigleaf maple	<i>Acer macrophyllum</i>	2x8	12	F	moderate structure	Off-site	protect
2	pacific madrone	<i>Arbutus menziesii</i>	12	16	G	visual assessment inhibited by blackberries	Off-site	protect
2b	pacific madrone	<i>Arbutus menziesii</i>	8	10	G	visual assessment inhibited by blackberries	Off-site	protect
3	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	14	F	moderate structure	No	remove
4	black cottonwood	<i>Populus trichocarpa</i>	15	22	F	inherent species limitations, old broken top with new leader, increased risk potential	No	remove
4b	bigleaf maple	<i>Acer macrophyllum</i>	14	20	F	natural regen on slope above street	No	remove
5	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	14	G	visual assessment inhibited by blackberries	No	remove
6	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	16	G	visual assessment inhibited by blackberries	No	remove
7	black cottonwood	<i>Populus trichocarpa</i>	20	20	F	inherent species limitations, moderate structure, trunk decay	No	remove
8	Douglas-fir	<i>Pseudotsuga menziesii</i>	34	25	G	visual assessment inhibited by blackberries, few broken branches, long lateral limbs	Yes	retain
9	Oregon white oak	<i>Quercus garryana</i>	10	14	G	visual assessment inhibited by blackberries	Yes	retain
10	Oregon white oak	<i>Quercus garryana</i>	20	24	P	very poor structure, trunk decay	No	remove
11	Oregon white oak	<i>Quercus garryana</i>	50	40	G	codominant stems with included bark and a prominent seam, high risk	No	remove
12	pacific madrone	<i>Arbutus menziesii</i>	10	14	F	some branch dieback, moderate structure	No	remove
13	Oregon white oak	<i>Quercus garryana</i>	20	20	P	very poor structure, trunk decay	No	remove
14	Oregon white oak	<i>Quercus garryana</i>	22	24	G	no major defects, dead branches	Yes	retain
15	Oregon white oak	<i>Quercus garryana</i>	10	10	G	no major defects, retain with group	Yes	retain
15b	Oregon white oak	<i>Quercus garryana</i>	2x8	10	G	codominant stems, retain with group	Yes	retain
15c	Oregon white oak	<i>Quercus garryana</i>	10	10	G	no major defects, retain with group	Yes	retain
16	Oregon white oak	<i>Quercus garryana</i>	18	20	G	no major defects, moderate structure	Yes	retain
16b	Oregon white oak	<i>Quercus garryana</i>	2x10	10	G	no major defects, codominant stems at ground level	Yes	retain
17	Oregon white oak	<i>Quercus garryana</i>	6,8,3x12	16	F	moderate structure, retain with group	Yes	retain

No.	Common Name	Species Name	DBH*	C-Rad^	Cond#	Defects and Comments	Sig?	Treatment
18	Oregon white oak	<i>Quercus garryana</i>	2x8	10	G	no major defects, codominant stems just above ground level	Yes	retain
19	Oregon white oak	<i>Quercus garryana</i>	2x6,12	12	G	epicormic sprouts, codominant stems just above ground level	Yes	retain
20	Oregon white oak	<i>Quercus garryana</i>	12	12	G	no major defects, few dead and broken branches	Yes	retain
21	Oregon white oak	<i>Quercus garryana</i>	18	14	F	twig dieback, poor vigor, possible decline	No	retain
22	Oregon white oak	<i>Quercus garryana</i>	24	18	G	no major defects	Yes	retain
23	Oregon white oak	<i>Quercus garryana</i>	6,8	16	G	codominant stems at ground level	Yes	retain
24	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	16	G	visual assessment inhibited by blackberry, few broken branches	Off-site	protect
24b	Oregon white oak	<i>Quercus garryana</i>	10	14	G	visual assessment inhibited by blackberry	Off-site	protect
24c	Oregon white oak	<i>Quercus garryana</i>	14	14	G	visual assessment inhibited by blackberry	Off-site	protect
25	Oregon white oak	<i>Quercus garryana</i>	8,3x12	12	G	codominant stems at ground level, visual assessment limited to south side of tree	Off-site	protect
26	Douglas-fir	<i>Pseudotsuga menziesii</i>	38	20	G	visual assessment limited to south side of tree	Yes	retain
27	Oregon white oak	<i>Quercus garryana</i>	2x8	10	G	no major defects, codominant stems just above ground level	Yes	retain
28	Oregon white oak	<i>Quercus garryana</i>	26	24	G	basal trunk wound on north face	Yes	retain
29	Oregon white oak	<i>Quercus garryana</i>	2x8	10	F	codominant stems just above ground level, old trunk wounds on eastern stem	Yes	retain
30	Oregon white oak	<i>Quercus garryana</i>	4x10	16	G	codominant stems at ground level, moderate structure, retain with group	Yes	retain
31	Oregon white oak	<i>Quercus garryana</i>	10	12	G	few dead branches	Yes	retain
32	Oregon white oak	<i>Quercus garryana</i>	11	4	P	broken top, advanced trunk decay with hollow 0-10', suppressed beneath crown of tree 33, high risk	No	remove
33	Oregon white oak	<i>Quercus garryana</i>	24	26	G	no major defects	Yes	retain
34	Oregon white oak	<i>Quercus garryana</i>	14	12	G	one-sided crown, old trunk wound on east face	Yes	retain

No.	Common Name	Species Name	DBH*	C-Rad^	Cond#	Defects and Comments	Sig?	Treatment
35	Oregon white oak	<i>Quercus garryana</i>	10,14	14	G	codominant stems at ~2' above ground level, visual assessment limited to south side of tree	Yes	retain
36	bigleaf maple	<i>Acer macrophyllum</i>	7x12	20	F	poor structure, advanced basal decay with hollow, high risk	No	remove
37	Oregon white oak	<i>Quercus garryana</i>	30	18	F	advanced trunk decay with hollow, decay in plane of lean to south, dead and broken branches, crown decay, high risk	No	remove
38	Oregon white oak	<i>Quercus garryana</i>	24	16	F	extensive ivy up trunk into crown, advanced basal and trunk decay with hollow, high risk	No	remove
39	Oregon white oak	<i>Quercus garryana</i>	22	22	G	no major defects, barbed wire compartmentalized in trunk	Yes	remove
40	Oregon white oak	<i>Quercus garryana</i>	7x6	12	G	codominant stems at ground level, moderate structure, retain with group	Yes	remove
41	Oregon white oak	<i>Quercus garryana</i>	22	22	G	few dead branches, branch decay	Yes	remove
42	Oregon white oak	<i>Quercus garryana</i>	8,10	14	G	codominant stems ~1' above ground level	Yes	remove
43	Oregon white oak	<i>Quercus garryana</i>	26	20	G	no major defects, barbed wire compartmentalized in trunk	Yes	remove
44	Oregon white oak	<i>Quercus garryana</i>	2x16	18	F	codominant stems ~1' above ground level, dead branches, moderate vigor, old wounds on north side	Yes	retain
45	Oregon white oak	<i>Quercus garryana</i>	10	14	F	moderate structure, previous report notes roots cut 2' from trunk on north side and hazard potential	Yes	retain
46	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	20	F	a few small <i>Phellinus pini</i> conks	Yes	retain
47	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	14	G	no major defects	Yes	remove
48	Oregon white oak	<i>Quercus garryana</i>	28	28	F	moderate vigor	Yes	remove
49	Douglas-fir	<i>Pseudotsuga menziesii</i>	34	20	G	codominant crown class, few dead branches, only suitable for retention in group with 49-52	Yes	remove

No.	Common Name	Species Name	DBH*	C-Rad^	Cond#	Defects and Comments	Sig?	Treatment
50	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	20	G	codominant crown class, old basal wound on east face, only suitable for retention in group with 49-52	Yes	remove
51	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	20	F	codominant crown class, old wound on west face, a few small <i>Phellinus pini</i> conks, dead and defective branches, only suitable for retention in group with 49-52	Yes	remove
52	Douglas-fir	<i>Pseudotsuga menziesii</i>	22,36	20	F	codominant crown class, codominant stems ~1' above ground level, moderate crown structure, dead and defective branches, only suitable for retention in group with 49-52	Yes	remove
53	Oregon white oak	<i>Quercus garryana</i>	2x18	16	F	codominant crown class, codominant stems at ~3' above ground level, some included bark with a small seam, trunk wound on west face, decay, retain with group	Off-site	protect
53b	Oregon white oak	<i>Quercus garryana</i>	32	26	F	trunk decay 0-10', barbed wire compartmentalized in trunk	Off-site	protect
53c	Austrian pine	<i>Pinus nigra</i>	12	9	P	dead top, suppressed beneath 53b	No	remove
54	Austrian pine	<i>Pinus nigra</i>	14	11	G	moderate structure, sweep in lower trunk, wound on east face at 10'	No	remove
54b	green ash	<i>Fraxinus pennsylvanica</i>	8	6	P	very poor crown structure, suppressed beneath 53b	No	remove
54c	Austrian pine	<i>Pinus nigra</i>	10	10	G	forked top	No	remove
55	London planetree	<i>Platanus × acerifolia</i>	12	14	G	no major defects	No	remove
56	Austrian pine	<i>Pinus nigra</i>	14	14	F	moderate structure, forked tops	No	remove
57	Austrian pine	<i>Pinus nigra</i>	8	12	F	moderate structure, forked tops	No	remove
58	Austrian pine	<i>Pinus nigra</i>	10	12	F	moderate structure, forked tops	No	remove
59	London planetree	<i>Platanus × acerifolia</i>	10	16	G	blackberry growing into lower crown	No	remove
60	green ash	<i>Fraxinus pennsylvanica</i>	10	12	F	codominant stem failure, wound on east face	No	remove

No.	Common Name	Species Name	DBH*	C-Rad^	Cond#	Defects and Comments	Sig?	Treatment
60b	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	10	F	crowded by adjacent trees	No	remove
60c	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	10	G	blackberry growing into lower crown	No	remove
61	London planetree	<i>Platanus × acerifolia</i>	14	16	G	no major defects	No	remove
61b	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	6	F	poor structure, overcrowded by 61	No	remove
62	London planetree	<i>Platanus × acerifolia</i>	12	14	G	some crown asymmetry	No	remove
63	Austrian pine	<i>Pinus nigra</i>	6	8	G	some crown asymmetry	No	remove
64	London planetree	<i>Platanus × acerifolia</i>	10	14	G	blackberry growing into lower crown	No	remove
65	London planetree	<i>Platanus × acerifolia</i>	14	16	G	no major defects	No	remove
66	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	8	F	poor crown structure, suppressed	No	remove
67	London planetree	<i>Platanus × acerifolia</i>	12	20	G	no major defects	Off-site	protect
68	scots pine	<i>Pinus sylvestica</i>	10	8	F	blackberry growing into lower crown, moderate structure	Off-site	protect
69	London planetree	<i>Platanus × acerifolia</i>	12	16	G	no major defects	Off-site	protect
70	scots pine	<i>Pinus sylvestica</i>	6	0	D	whole tree failure	Off-site	protect
71	scots pine	<i>Pinus sylvestica</i>	8	8	F	visual assessment inhibited by blackberry, moderate structure	Off-site	protect
72	Leyland cypress	<i>Cupressus × leylandii</i>	14	16	G	no major defects	Off-site	protect
73	Leyland cypress	<i>Cupressus × leylandii</i>	14	16	G	no major defects	Off-site	protect
74	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	14	G	no major defects, south edge of row on slope above street	Off-site	protect
75	black cottonwood	<i>Populus trichocarpa</i>	14	12	G	inherent species limitations	Off-site	protect
76	pacific madrone	<i>Arbutus menziesii</i>	10	8	F	phototropic lean to west	Off-site	protect
77	black cottonwood	<i>Populus trichocarpa</i>	12	8	F	inherent species limitations	Off-site	protect
78	Douglas-fir	<i>Pseudotsuga menziesii</i>	9	6	F	crowded in dense row on steep slope above street	Off-site	protect
79	black cottonwood	<i>Populus trichocarpa</i>	16,22	18	F	inherent species limitations, codominant stems with included bark	Off-site	protect

No.	Common Name	Species Name	DBH*	C-Rad^	Cond#	Defects and Comments	Sig?	Treatment
80	black cottonwood	<i>Populus trichocarpa</i>	2x20	16	F	inherent species limitations, codominant stems with included bark, trunk decay	Off-site	protect
81	Douglas-fir	<i>Pseudotsuga menziesii</i>	6	6	P	suppressed	Off-site	protect
82	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	G	crowded in dense row on steep slope above street	Off-site	protect
83	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	F	crowded in dense row on steep slope above street	Off-site	protect
84	Douglas-fir	<i>Pseudotsuga menziesii</i>	11	10	P	suppressed	Off-site	protect
85	black cottonwood	<i>Populus trichocarpa</i>	3x16	14	F	inherent species limitations, poor structure	Off-site	protect
86	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	F	crowded in dense row on steep slope above street	Off-site	protect
87	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	8	F	crowded in dense row on steep slope above street, crown asymmetry	Off-site	protect
88	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	8	P	suppressed	Off-site	protect
89	Douglas-fir	<i>Pseudotsuga menziesii</i>	7	8	P	suppressed	Off-site	protect
90	pacific madrone	<i>Arbutus menziesii</i>	10,16	14	F	crowded in dense row on steep slope above street, crown asymmetry	Off-site	protect
91	black cottonwood	<i>Populus trichocarpa</i>	13	12	G	inherent species limitations	Off-site	protect
92	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	10	F	crowded in dense row on steep slope above street, crown asymmetry	Off-site	protect
93	black cottonwood	<i>Populus trichocarpa</i>	17	12	G	inherent species limitations	No	remove
94	black cottonwood	<i>Populus trichocarpa</i>	12	10	G	inherent species limitations	No	remove
95	black cottonwood	<i>Populus trichocarpa</i>	10	10	F	inherent species limitations, poor structure	No	remove
96	Douglas-fir	<i>Pseudotsuga menziesii</i>	9	8	P	suppressed	No	remove
97	black cottonwood	<i>Populus trichocarpa</i>	14	12	F	inherent species limitations, high live crown	No	remove
98	bigleaf maple	<i>Acer macrophyllum</i>	12	10	F	crowded in dense row on steep slope above street, crown asymmetry	No	remove
99	bigleaf maple	<i>Acer macrophyllum</i>	10	10	F	crowded in dense row on steep slope above street, one-sided crown	No	remove
100	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	8	F	crowded in dense row on steep slope above street	No	remove

No.	Common Name	Species Name	DBH*	C-Rad^	Cond#	Defects and Comments	Sig?	Treatment
101	black cottonwood	<i>Populus trichocarpa</i>	24	14	G	inherent species limitations	No	remove
102	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	6	F	crowded in dense row on steep slope above street	No	remove
103	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	6	F	crowded in dense row on steep slope above street, crown asymmetry	No	remove
104	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	6	F	suppressed	No	remove
105	black cottonwood	<i>Populus trichocarpa</i>	12	10	F	inherent species limitations, poor structure, old broken top with new leader, trunk wound on east face	No	remove
106	black cottonwood	<i>Populus trichocarpa</i>	17	12	G	inherent species limitations, basal wound on east face	No	remove
107	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	6	P	suppressed	No	remove
108	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	6	P	suppressed	No	remove
109	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	G	crowded in dense row on steep slope above street, crown asymmetry	No	remove
110	black cottonwood	<i>Populus trichocarpa</i>	14	12	F	inherent species limitations	No	remove
111	black cottonwood	<i>Populus trichocarpa</i>	14	12	F	inherent species limitations	No	remove
112	black cottonwood	<i>Populus trichocarpa</i>	10	12	F	inherent species limitations	No	remove
113	bigleaf maple	<i>Acer macrophyllum</i>	10	12	F	inherent species limitations	No	remove
114	black cottonwood	<i>Populus trichocarpa</i>	2x16	16	F	inherent species limitations, moderate structure	No	remove
115	bigleaf maple	<i>Acer macrophyllum</i>	2x10	14	F	crowded in dense row on steep slope above street, moderate structure	No	remove
116	black cottonwood	<i>Populus trichocarpa</i>	16	16	F	inherent species limitations, moderate structure	No	remove
117	black cottonwood	<i>Populus trichocarpa</i>	16	14	F	inherent species limitations, moderate structure	No	remove
118	Douglas-fir	<i>Pseudotsuga menziesii</i>	9	6	P	suppressed	No	remove
119	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	8	P	suppressed	No	remove
120	black cottonwood	<i>Populus trichocarpa</i>	2x14	14	F	inherent species limitations, poor structure	No	remove

No.	Common Name	Species Name	DBH*	C-Rad^	Cond [#]	Defects and Comments	Sig?	Treatment
120b	bignia maple	<i>Acer macrophyllum</i>	16	10	F	crowded in dense row on steep slope above street, poor structure	No	remove
121	black cottonwood	<i>Populus trichocarpa</i>	18	12	G	inherent species limitations	No	remove
121b	bignia maple	<i>Acer macrophyllum</i>	7	8	F	crowded in dense row on steep slope above street, poor structure	No	remove
121c	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	10	G	crowded in dense row on steep slope above street, moderate structure	No	remove
122	black cottonwood	<i>Populus trichocarpa</i>	17	12	G	inherent species limitations	No	remove
123	bignia maple	<i>Acer macrophyllum</i>	10	12	F	multiple attachments with included bark	No	remove

***DBH** is tree diameter measured at breast height, 4.5-feet above the ground level (inches); codominant trunks splitting below DBH are measured individually and separated by a comma, except for codominant stems of equal size are noted as quantity x size.

^**C-Rad** is the average crown radius measured in feet.

[#]**Cond** is an arborist assigned rating to generally describe the condition of individual trees as follows- Dead; Poor; Fair; or Good Condition.

Sig? asks whether or not on-site trees are considered potentially significant, either Yes (likely significant) or No (not considered significant).

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WEST LINN MIXED USE DEVELOPMENT
TANNER ROAD
WEST LINN, OREGON

LIGHTING REPORT
For Otak, Inc.

Prepared by
MEC Engineering, Inc.

Revised July 9, 2015
Issued for Permit

Scope of Work:

The MEC scope of work for this multifamily development includes primarily site lighting, including parking lots, connecting roadways and pedestrian pathways.

Analysis Approach:

Illumination Modeling

Lighting Analysts, Inc. AGI 32-14.4 software has been used to model the lighting levels for the complete project as noted in the above scope of work. Illumination photometric calculations are provided in this report for the Final design and engineering. Photometric plans produced in AGI 32 were exported to AutoCAD for clarity of presentation. The photometric plans show horizontal maintained illumination in footcandles at grade. Statistical areas are provided for review of illumination levels and uniformity ratios at automobile parking locations, roadway, intersections, pedestrian walkways and conflict areas.

MEC has selected LED luminaires with specific requirements and mounting criteria. Appropriate light loss factors for luminaire maintenance and dirt depreciation have been applied to the calculations per recommendations from IESNA standards. The IESNA method for calculating veiling luminance is not listed in the calculations, but is considered for visibility. Veiling luminance uses the same points as the pavement luminance yet considering the observer is 83 meters back from each computation point.

Design Criteria

For lighting design criteria we used IESNA RP-8-00 (R2005) American National Standard Practice for Roadway, Pedestrian and Bikeway lighting. We used the Illuminance design approach with the following recommendations from the Tables in RP-8-00:

1. Table 2 - Road and Pedestrian Conflict Area Illuminance in footcandles. This consists of Min Maintained Ave Illumination, Uniformity Ratio (Ave to Min and Max to Min).
2. Table 9 - Illuminance for Intersections in footcandles. This consists of Ave Maintained Illumination at Pavement by Pedestrian Area Classification, Uniformity Ratio (Ave to Min).

Local Code Application

The City of West Linn required A light coverage plan with photometric data, including the location and type of outdoor lighting, with specific consideration given to compliance with the West Linn Community Development Code, CDC [55.100](#)(J) pertaining to crime prevention and, if applicable, CDC [46.150](#)(A)(13) pertaining to parking lot lighting.

Results

Refer to photometric sheets EL1 through EL10 for horizontal maintained illumination, point by point calculations and statistical area calculations indicating average horizontal maintained illumination values. See the Luminaire Schedule on page 4 of this report.

The requirements of CDC 55.100.J. specific to lighting are completely met. However, for the purpose of enhanced crime prevention, we are taking exception to the use of low or high pressure sodium luminaires as is required in 55.100. J. 6. Low and high pressure sodium lighting is yellow and does not provide color rendering qualities that enhance visibility. LED lighting at 4000 Kelvin temperature is whiter light and provides a significant improvement in visibility. Also, LED provides significantly better energy savings and due to the exceeding long life of LED luminaires, maintenance will be minimized.

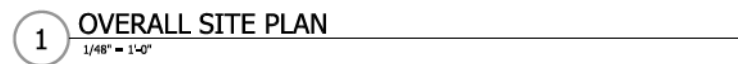
The requirements of CDC 46.150 are met regarding that which is applicable to lighting. One other advantage of using LED lighting is the ability to direct lighting where wanted and cut off lighting where it is not. In some cases “house side shields” are provided where it is helpful.

Veiling Luminance Ratio - Max to Ave is well below Table 2 values.

Luminaire Schedule					
TYPE	SYM.	DESCRIPTION	VOLTS	LAMP	MODEL NUMBER
A1		ROADWAY AND AREA LUMINAIRE.	120V	LED	LITHONIA D-SERIES SIZE 2: DSX2 LED 100C 700 40K T5M120
B1		PATHWAY LIGHTING	120V	LED	LITHONIA D-SERIES SIZE 1: DSX1 LED 30C 1000 40K T3M120
B2		PATHWAY LIGHTING	120V	LED	LITHONIA D-SERIES SIZE 1: DSX1 LED 30C 1000 40K T2S120
C1		WALL MOUNT SCONCE TYPE LUMINAIRE	120V	LED	LITHONIA D-SERIES SIZE 2: DSXW2 LED 20C 350 40K TFTM120
C2		WALL MOUNT SCONCE TYPE LUMINAIRE	120V	LED	LITHONIA D-SERIES SIZE 2: DSXW2 LED 20C 350 40K T4M 120

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- ① CENTER ROAD INTERSECTION 1
REFERENCE DWG EL3
- ② CENTER ROAD INTERSECTION 2
REFERENCE DWG EL5
- ③ SOUTH ROAD INTERSECTION
REFERENCE DWG EL8
- ④ STAIR 2
REFERENCE DWG EL10
- ⑤ WALKWAY TO STREET
REFERENCE DWG EL8
- ⑥ SOUTHEAST STAIR
REFERENCE DWG EL9

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Overall Site Plan

EL0

C. CALCULATIONS PERFORMED IN
LIGHTING ANALYSTS, INC.
AGI32, 14.4

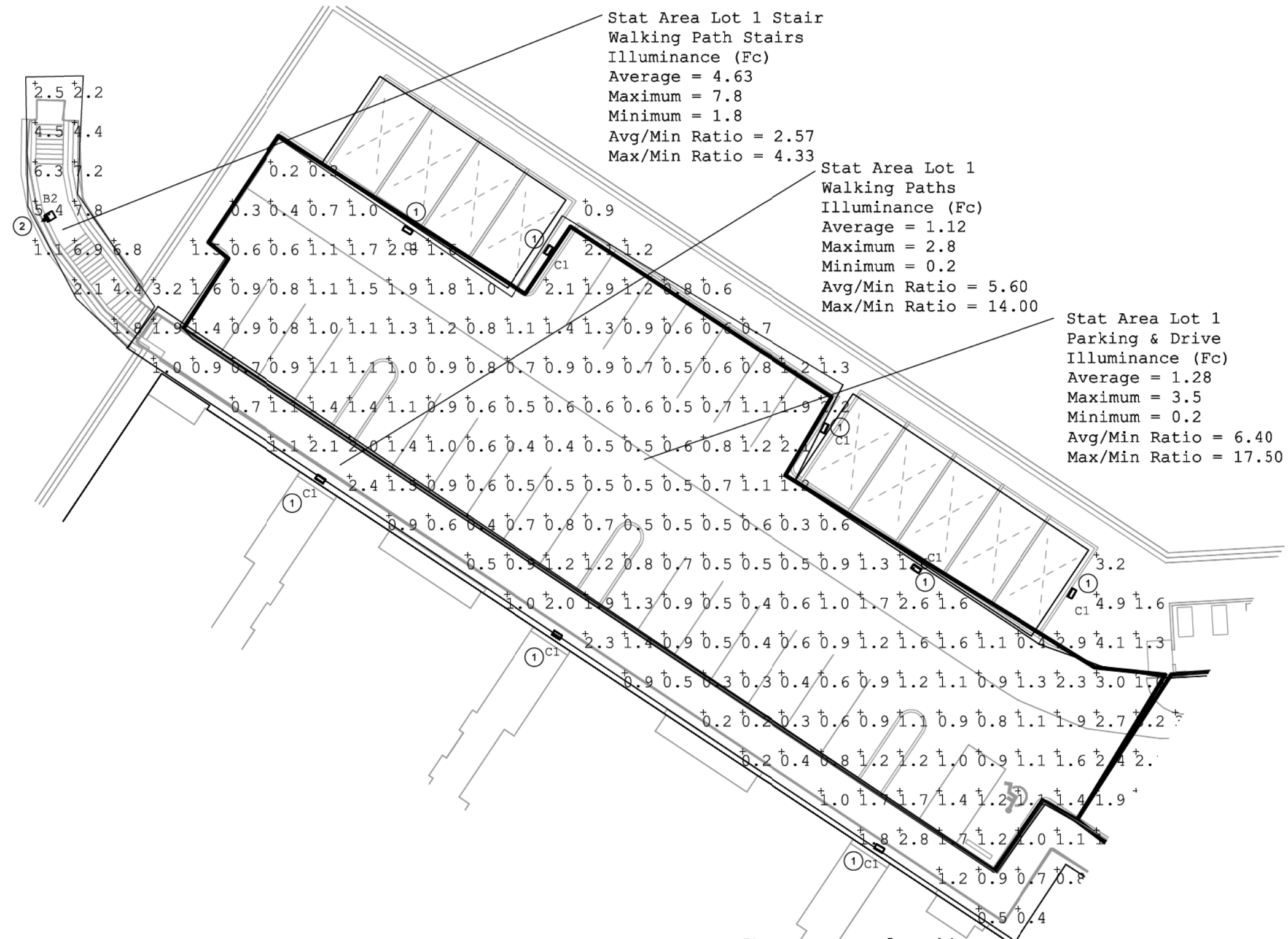
② MOUNTING HEIGHT = 14'-0"
POLE MOUNTED

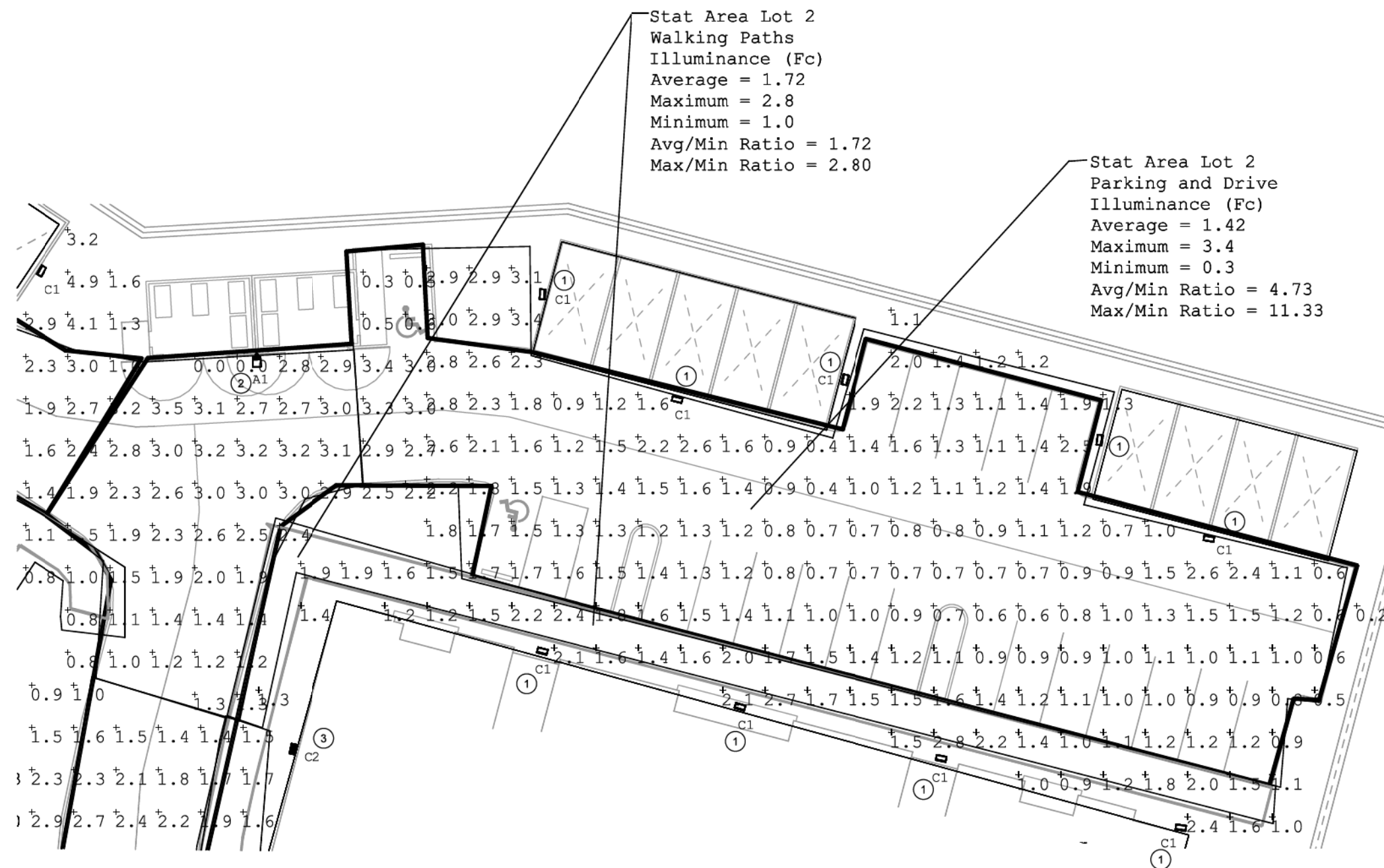
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Lighting Site Plan

EL1





GENERAL NOTES:

A. REFER TO LUMINAIRE SCHEDULE
IN REPORT.

B. "Fc" = FOOTCANDLES

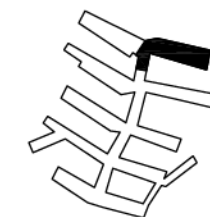
C. CALCULATIONS PERFORMED IN
LIGHTING ANALYSTS, INC.
AGI32, 14.4

KEYED NOTES:

- ① MOUNTING HEIGHT = 10'-0"
- ② MOUNTING HEIGHT = 20'-0"
POLE MOUNTED
- ③ MOUNTING HEIGHT = 14'-0"

Tannler Road Apartments
West Lynn, Oregon

KEY PLAN



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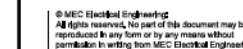
Lighting Site Plan

EL2

C. CALCULATIONS PERFORMED IN
LIGHTING ANALYSTS, INC.
AGI32, 14.4

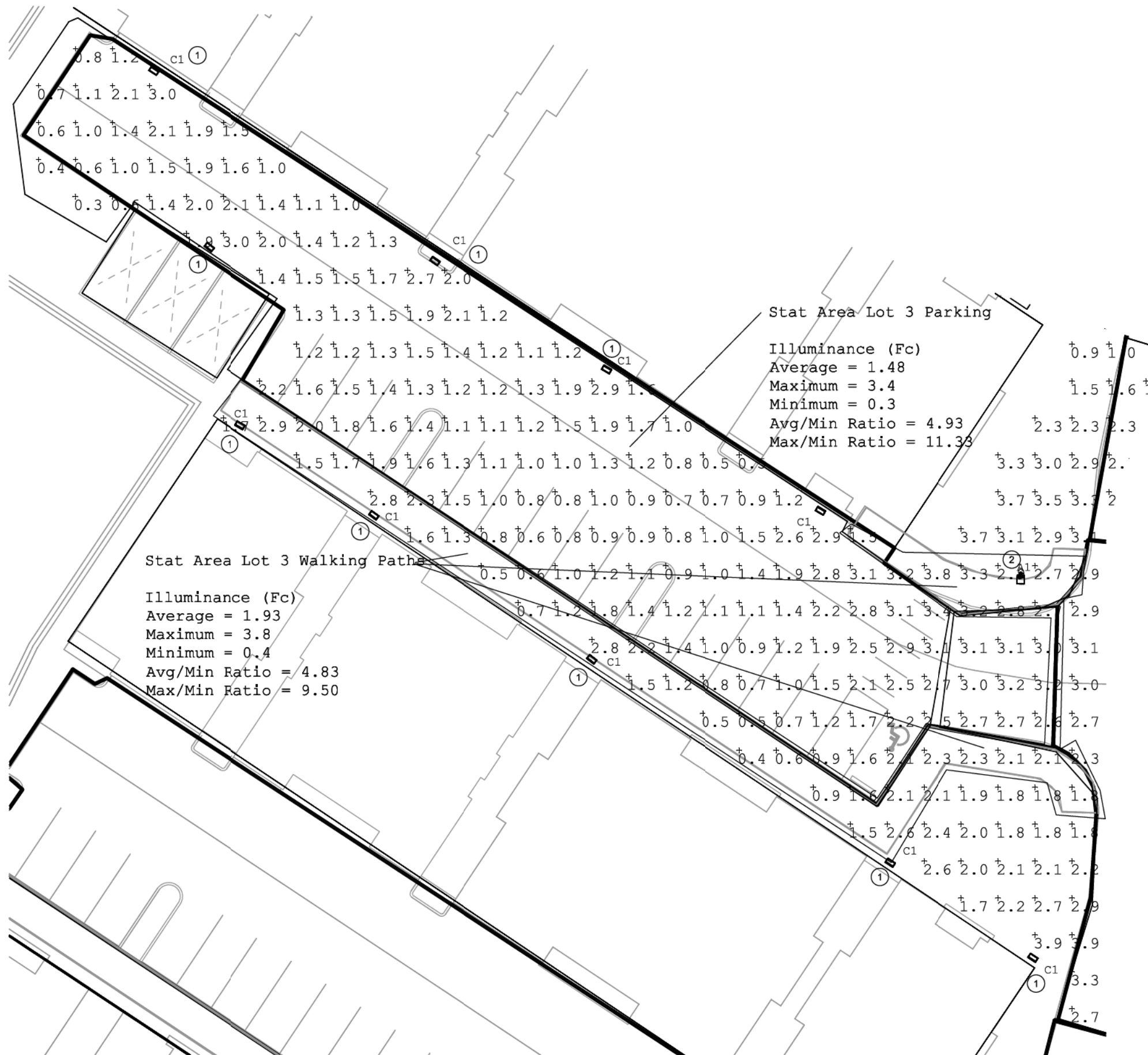
③ MOUNTING HEIGHT = 14'-0"
POLE MOUNTED

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Lighting Site Plan

EL3



GENERAL NOTES:

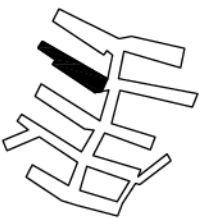
- A. REFER TO LUMINAIRE SCHEDULE IN REPORT.
- B. "Fc" = FOOTCANDLES
- C. CALCULATIONS PERFORMED IN LIGHTING ANALYSTS, INC. AGI32, 14.4

KEYED NOTES:

- ① MOUNTING HEIGHT = 10'-0"
- ② MOUNTING HEIGHT = 20'-0" POLE MOUNTED

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Stat Area Lot 3 Walking Paths

Illuminance (Fc)
Average = 1.93
Maximum = 3.8
Minimum = 0.4
Avg/Min Ratio = 4.83
Max/Min Ratio = 9.50

Stat Area Lot 3 Parking

Illuminance (Fc)
Average = 1.48
Maximum = 3.4
Minimum = 0.3
Avg/Min Ratio = 4.93
Max/Min Ratio = 11.33

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DATE	DESCRIPTION
07/09/15	FOR PERMIT

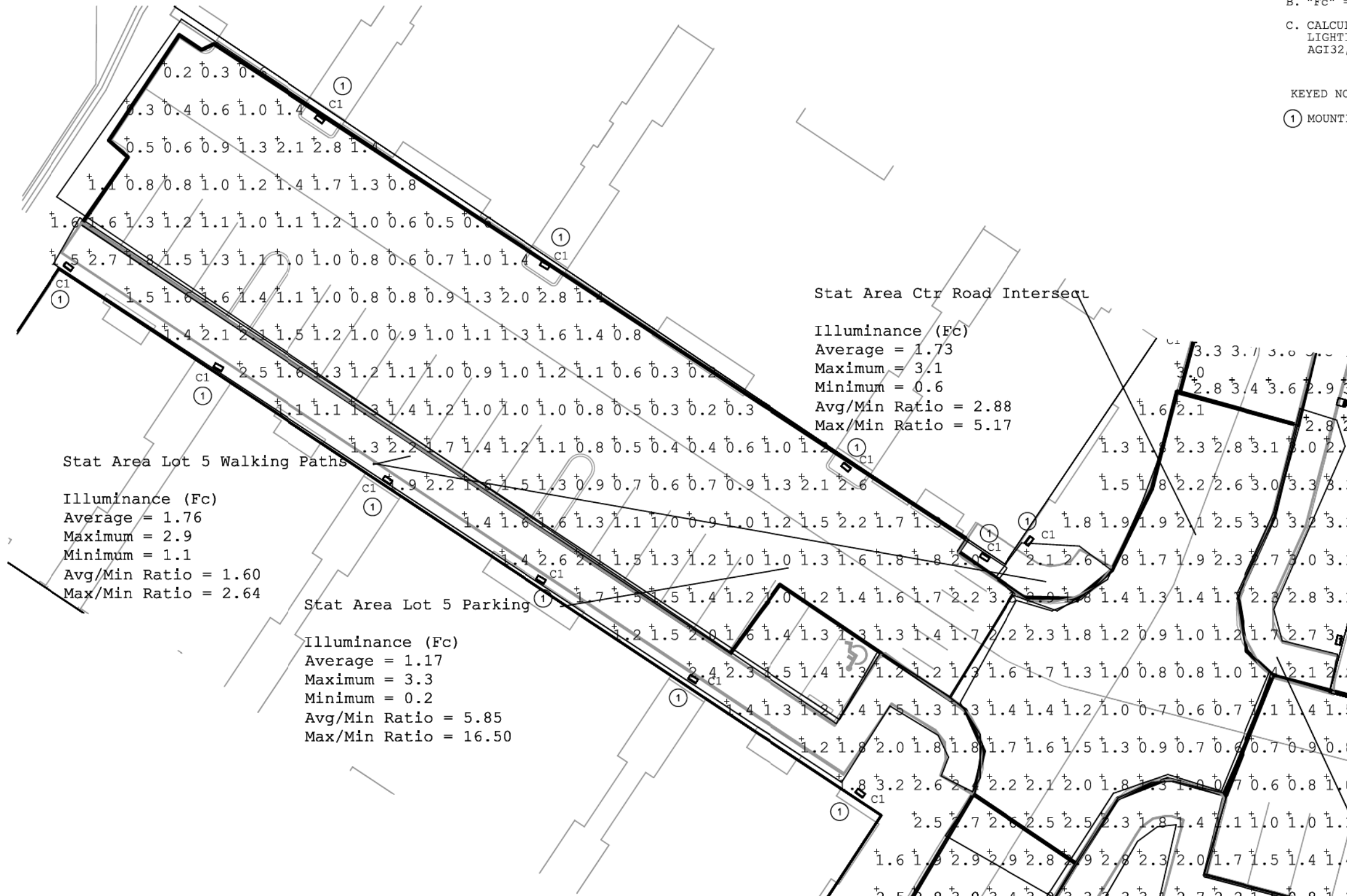
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Lighting Site Plan

EL4

① MOUNTING HEIGHT = 10'-0"

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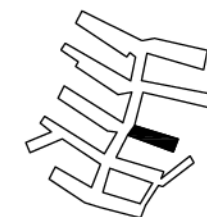
Lighting Site Plan

EL5

C. CALCULATIONS PERFORMED IN
LIGHTING ANALYSTS, INC.
AGI32, 14.4

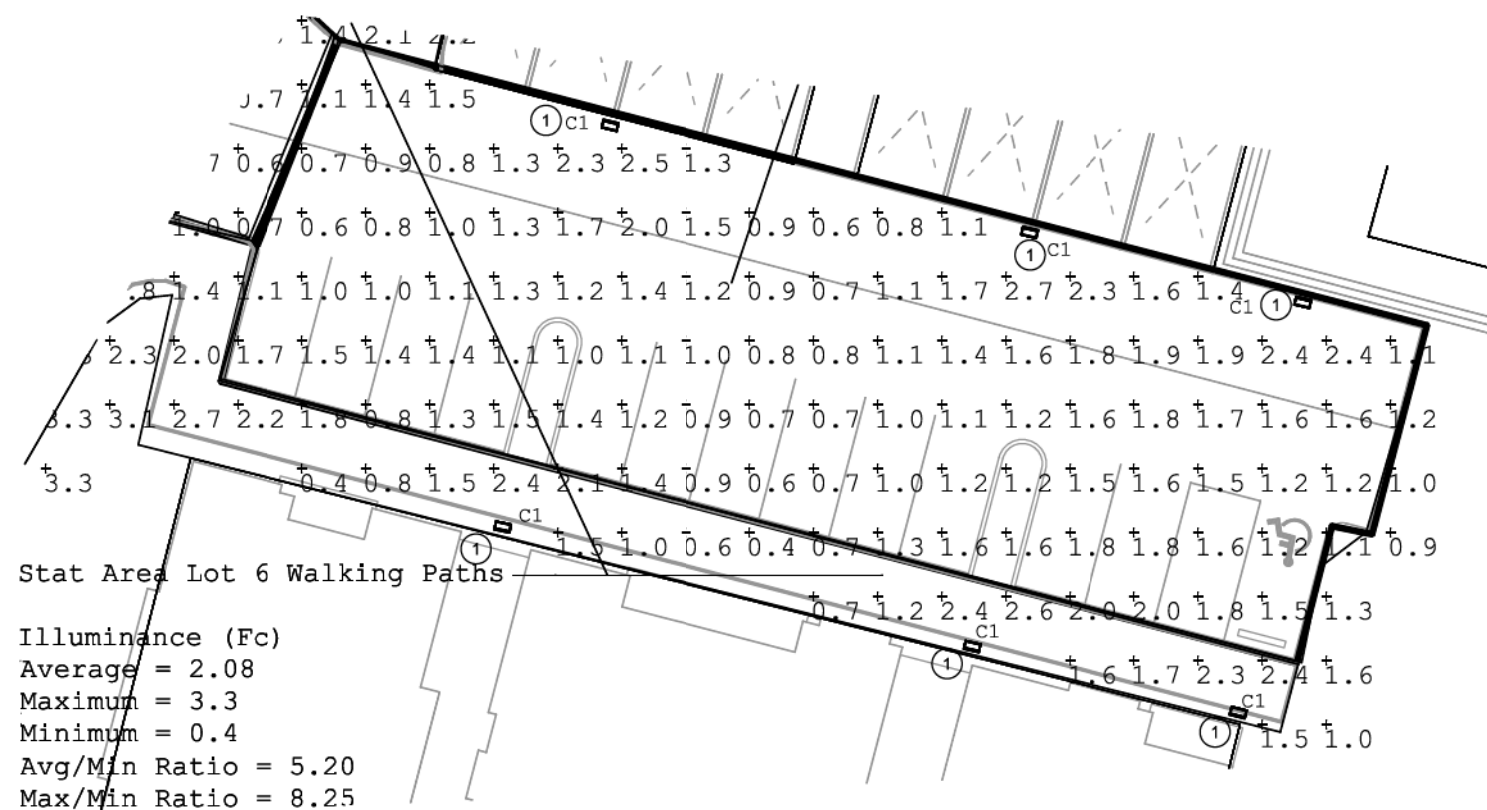
① MOUNTING HEIGHT = 10'-0"

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Stat Area Lot 6 Walking Paths

Illuminance (Fc)

Average = 2.08

Maximum = 3.3

Minimum = 0.4

Avg/Min Ratio = 5.20

Max/Min Ratio = 8.25

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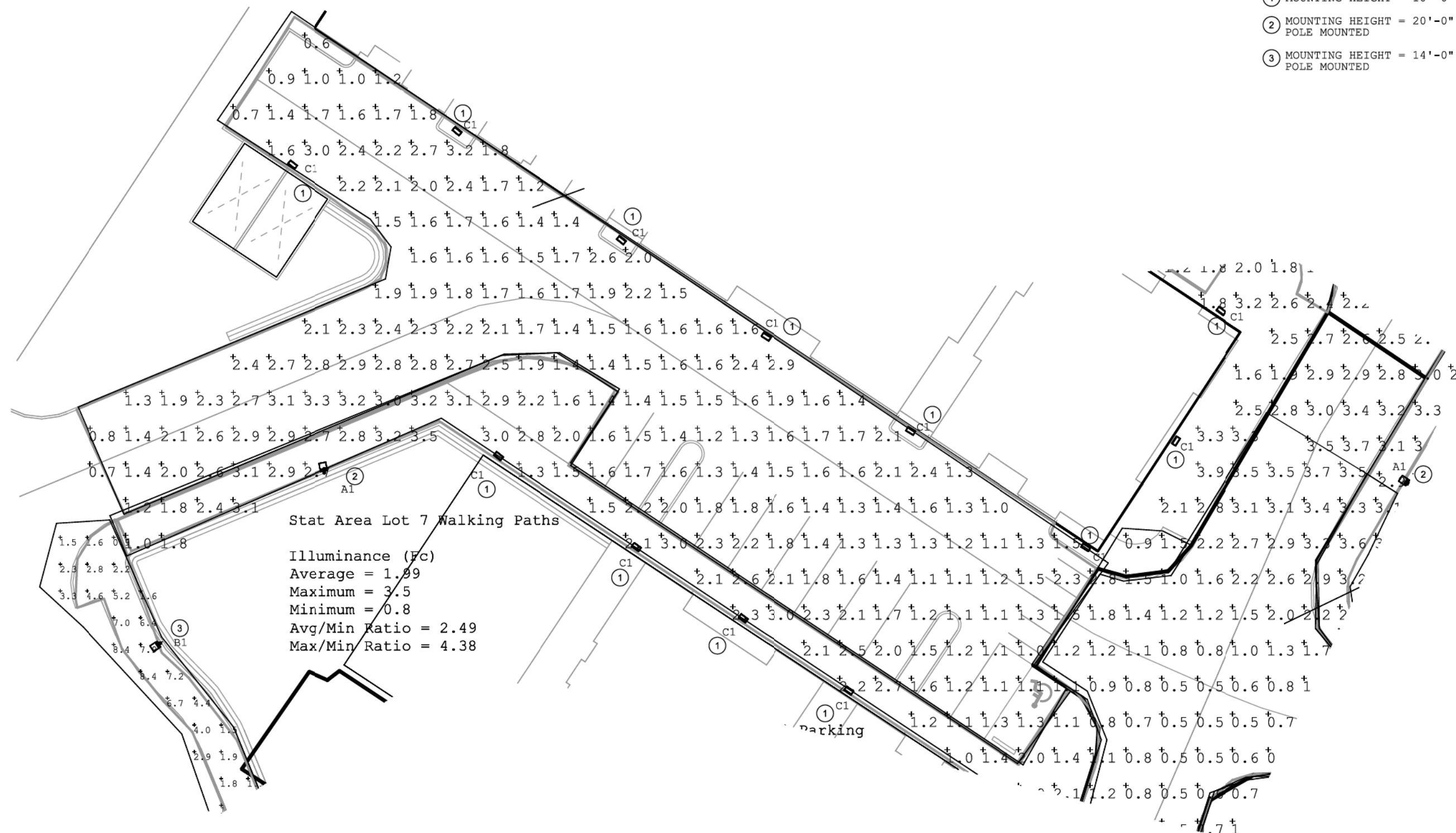
Lighting Site Plan

EL6

C. CALCULATIONS PERFORMED IN
LIGHTING ANALYSTS, INC.
AGI32, 14.4

③ MOUNTING HEIGHT = 14'-0"
POLE MOUNTED

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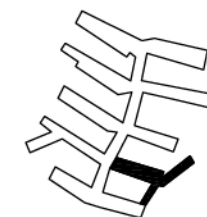
Lighting Site Plan

EL7

C. CALCULATIONS PERFORMED IN
LIGHTING ANALYSTS, INC.
AGI32, 14.4

② MOUNTING HEIGHT = 14'-0"

KEY PLAN



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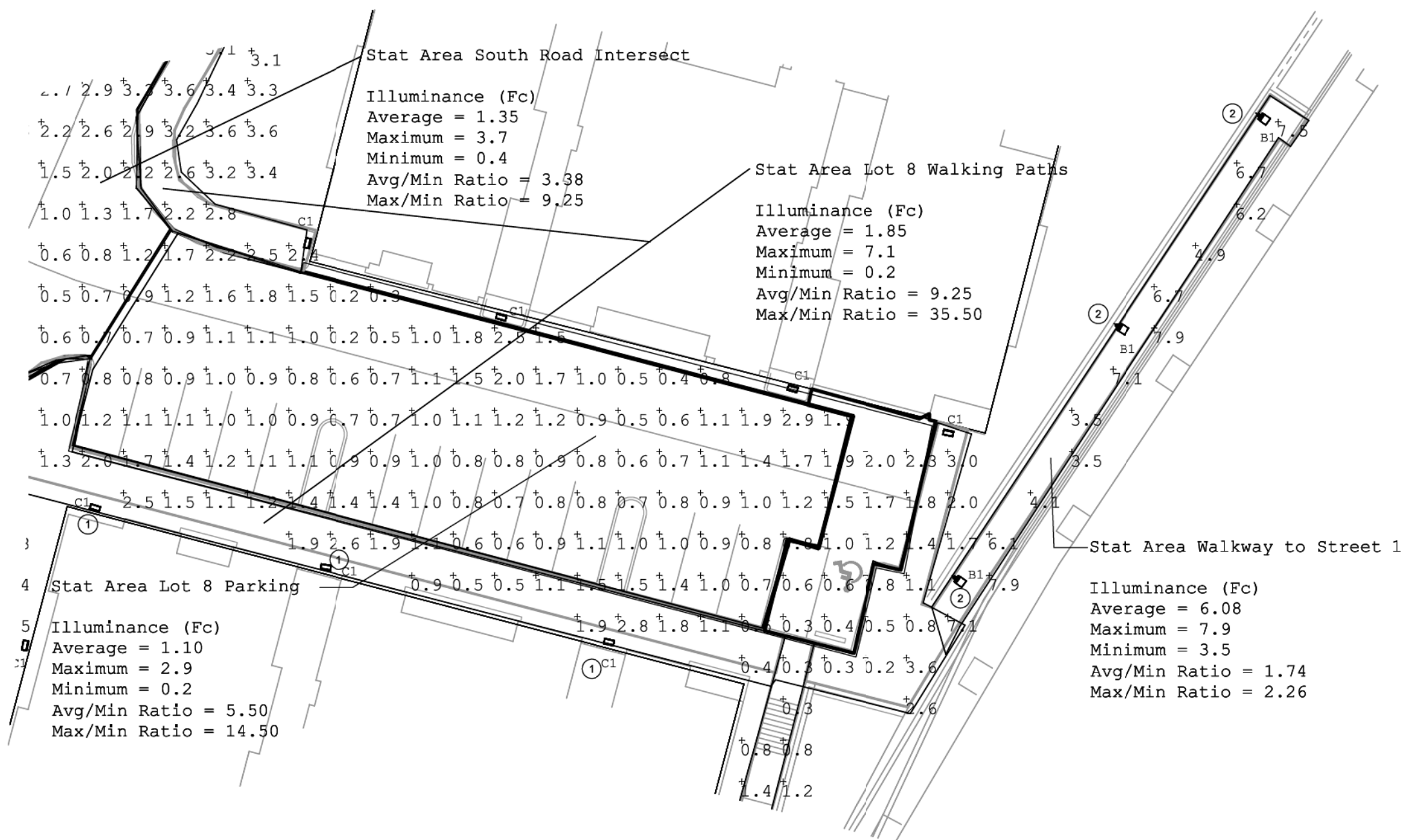
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Lighting Site Plan

EL8





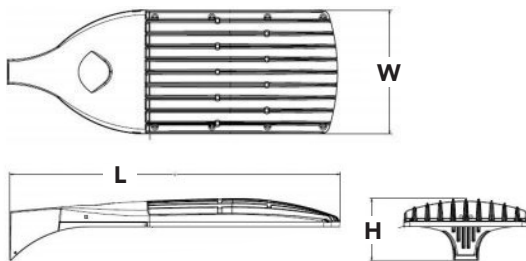
D-Series Size 2 LED Area Luminaire

d^{series}



Specifications

EPA:	2.0 ft ² (0.19 m ²)
Length:	40" (101.6 cm)
Width:	15" (38.1 cm)
Height:	7-1/4" (18.4 cm)
Weight (max):	36 lbs (16.3 kg)



Catalog
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment.

The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. The Size 2 is ideal for replacing 400-1000W metal halide in area lighting applications with energy savings of up to 80% and expected service life of over 100,000 hours.

Ordering Information

EXAMPLE: DSX2 LED 80C 1000 40K T4M MVOLT SPA DDBXD

DSX2 LED						
Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting
DSX2 LED	Forward optics 80C 80 LEDs (four engine) 100C 100 LEDs (four engines) Rotated optics ¹ 90C 90 LEDs	530 530 mA 700 700 mA 1000 1000 mA (1 A)	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted	T1S Type I Short T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium T5VS Type V Very Short T5S Type V Short T5M Type V Medium T5W Type V Wide	MVOLT ² 120 ² 208 ² 240 ² 277 ² 347 480	Shipped included SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor ³ RPUMBA Round pole universal mounting adaptor ³ Shipped separately KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish) ⁴

Control options	Other options	Finish (required)
Shipped installed PER NEMA twist-lock receptacle only (no controls) ⁵ PER5 Five-wire receptacle only (no controls) ^{5,6} PER7 Seven-wire receptacle only (no controls) ^{5,6} DMG 0-10V dimming driver (no controls) ⁷ DCR Dimmable and controllable via ROAM® (no controls) ⁸ DS Dual switching ^{9,10} PIRH Motion sensor, 15-30' mounting height ¹¹	Shipped installed HS House-side shield ¹³ SF Single fuse (120, 277, 347V) ² DF Double fuse (208, 240, 480V) ² L90 Left rotated optics R90 Right rotated optics	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Drilling

Template #8 Top of Pole

DSX2 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles, per the table below.

DM19AS Single unit	DM29AS 2 at 90° *
DM28AS 2 at 180°	DM39AS 3 at 90° *
DM49AS 4 at 90° *	DM32AS 3 at 120° **

Example: SSA 20 4C DM19AS DDBXD

Visit Lithonia Lighting's **POLES CENTRAL** to see our wide selection of poles, accessories and educational tools.

*Round pole top must be 3.25" O.D. minimum.

**For round pole mounting (RPA) only.

Controls & Shields

Accessories
Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ¹⁴
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ¹⁴
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ¹⁴
SC U	Shorting cap ¹⁴
DSX2HS 80C U	House-side shield for 80 LED unit
DSX2HS 90C U	House-side shield for 90 LED unit
DSX2HS 100C U	House-side shield for 100 LED unit
PUMBA DDBXD U*	Square and round pole universal mounting bracket (specify finish)
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish) ⁴

For more control options, visit **DTL** and **ROAM** online.

Tenon Mounting Slipfitter **

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

- NOTES**
- 1 Rotated optics option (L90, R90) required for 90C.
 - 2 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
 - 3 Available as a separate combination accessory: PUMBA (finish) U. Round pole must have 4" O.D. minimum; 1.5 G vibration load rating per ANCI C136.31.
 - 4 Must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" O.D. mast arm (not included).
 - 5 Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Not available with DS option.
 - 6 If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Not available with DCR.
 - 7 347 or 480 voltage option with DMG requires 1000 mA.
 - 8 Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamcontrols.net. Not available with PIRH, DS, BL30, BL50, PER5, PER7, or part night options (PNMTxxx).
 - 9 Provides 50/50 luminaire operation via two independent drivers on two separate circuits. Not available with 80C 530, 90C 530, PER, PER5, PER7, DCR, BL30, BL50, or part night options (PNMTxxx).
 - 10 Requires an additional switched line.
 - 11 Specifies the **SensorSwitch SBGR-6-ODP** control; see **Motion Sensor Guide** for details. Dimming driver standard. Not available with BL30, BL50 or DCR.
 - 12 Dimming driver standard. Not available with 347V, 480V, DCR, DS, or PIRH.
 - 13 Also available as a separate accessory; see Accessories information.
 - 14 Requires luminaire to be specified with PER, PER5 or PER7 option. Ordered and shipped as a separate line item from Acuity Brands Controls.



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DSX2-LED
Rev. 06/03/15

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
80C (80 LEDs)	530 mA	137 W	T1S	14,438	3	0	3	108	15,360	3	0	3	115	15,415	3	0	3	115	10,752	2	0	2	78
			T2S	14,172	3	0	3	106	15,077	3	0	3	113	15,131	3	0	3	113	10,554	2	0	2	77
			T2M	14,196	3	0	3	106	15,102	3	0	3	113	15,156	3	0	3	114	10,571	2	0	2	77
			T3S	14,165	3	0	3	106	15,069	3	0	3	113	15,123	3	0	3	113	10,548	2	0	2	77
			T3M	14,193	3	0	4	106	15,099	3	0	4	113	15,153	3	0	4	114	10,569	2	0	2	77
			T4M	13,736	3	0	4	103	15,067	3	0	4	113	15,121	3	0	4	113	10,547	2	0	2	77
			TFTM	14,424	3	0	4	108	15,345	3	0	4	115	15,400	3	0	4	115	10,741	1	0	2	78
			TSVS	14,980	5	0	1	112	15,936	5	0	1	119	15,993	5	0	1	120	11,155	3	0	0	81
			T5S	14,972	4	0	2	112	15,927	4	0	2	119	15,985	4	0	2	120	11,149	3	0	0	81
			T5M	14,900	5	0	3	112	15,851	5	0	3	119	15,908	5	0	3	119	11,096	3	0	2	81
			TSW	14,713	5	0	3	110	15,652	5	0	3	117	15,709	5	0	3	118	10,957	3	0	2	80
			T1S	17,944	3	0	3	98	19,089	3	0	3	104	19,158	3	0	3	105	13,362	2	0	2	71
	T2S	17,613	3	0	3	96	18,738	3	0	3	102	18,805	3	0	3	103	13,116	2	0	2	70		
	T2M	17,643	3	0	3	96	18,769	3	0	3	103	18,836	3	0	3	103	13,138	2	0	2	70		
	T3S	17,604	3	0	3	96	18,728	3	0	3	102	18,795	3	0	3	103	13,110	2	0	2	70		
	T3M	17,639	3	0	4	96	18,764	3	0	4	103	18,832	3	0	4	103	13,135	2	0	3	70		
	T4M	17,071	3	0	4	93	18,725	3	0	4	102	18,792	3	0	4	103	13,108	2	0	2	70		
	TFTM	17,926	3	0	4	98	19,071	3	0	4	104	19,139	3	0	4	105	13,349	2	0	2	71		
	TSVS	18,617	5	0	1	102	19,805	5	0	1	108	19,876	5	0	1	109	13,864	3	0	1	74		
	T5S	18,607	4	0	2	102	19,794	4	0	2	108	19,866	4	0	2	109	13,856	3	0	1	74		
	T5M	18,518	5	0	3	101	19,700	5	0	3	108	19,771	5	0	3	108	13,790	3	0	2	73		
	TSW	18,286	5	0	3	100	19,453	5	0	3	106	19,523	5	0	3	107	13,617	4	0	2	72		
	1000 mA	282 W	T1S	24,339	3	0	3	85	25,892	3	0	3	91	25,985	3	0	3	91	18,125	2	0	2	64
			T2S	23,891	3	0	3	84	25,416	3	0	3	89	25,507	3	0	3	90	17,791	3	0	3	63
			T2M	23,931	3	0	3	84	25,458	3	0	4	89	25,550	3	0	4	90	17,821	3	0	3	63
			T3S	23,879	3	0	3	84	25,403	3	0	3	89	25,494	3	0	3	90	17,782	2	0	2	63
			T3M	23,925	3	0	4	84	25,452	3	0	4	89	25,544	3	0	4	90	17,817	3	0	3	63
			T4M	23,155	3	0	4	81	25,399	3	0	4	89	25,490	3	0	4	90	17,779	2	0	3	63
			TFTM	24,315	3	0	4	85	25,867	3	0	4	91	25,960	3	0	4	91	18,107	2	0	3	64
			TSVS	25,252	5	0	1	89	26,864	5	0	1	94	26,960	5	0	1	95	18,805	3	0	1	67
			T5S	25,238	5	0	2	89	26,849	5	0	2	94	26,946	5	0	2	95	18,794	3	0	1	67
			T5M	25,118	5	0	3	88	26,721	5	0	3	94	26,817	5	0	3	94	18,705	4	0	2	66
			TSW	24,803	5	0	4	87	26,386	5	0	4	93	26,481	5	0	4	93	18,470	4	0	2	65
T1S			17,592	3	0	3	103	18,715	3	0	3	110	18,782	3	0	3	110	13,100	2	0	2	75	
T2S	17,268	3	0	3	101	18,370	3	0	3	108	18,436	3	0	3	108	12,859	2	0	2	73			
T2M	17,297	3	0	3	102	18,401	3	0	3	108	18,467	3	0	3	108	12,881	2	0	2	74			
T3S	17,259	3	0	3	101	18,361	3	0	3	108	18,427	3	0	3	108	12,853	2	0	2	73			
T3M	17,293	3	0	4	101	18,397	3	0	4	108	18,463	3	0	4	108	12,878	2	0	3	74			
T4M	16,736	3	0	4	98	18,358	3	0	4	108	18,424	3	0	4	108	12,851	2	0	2	73			
TFTM	17,575	3	0	4	103	18,697	3	0	4	110	18,764	3	0	4	110	13,088	2	0	2	75			
TSVS	18,252	5	0	1	107	19,417	5	0	1	114	19,487	5	0	1	114	13,592	3	0	1	78			
T5S	18,242	4	0	2	107	19,406	4	0	2	114	19,476	4	0	2	114	13,584	3	0	1	78			
T5M	18,155	5	0	3	107	19,314	5	0	3	113	19,383	5	0	3	114	13,520	3	0	2	77			
TSW	17,927	5	0	3	105	19,071	5	0	3	112	19,140	5	0	3	112	13,350	4	0	2	76			
100C (100 LEDs)	700 mA	232 W	T1S	22,078	3	0	3	97	23,487	3	0	3	103	23,571	3	0	3	104	16,441	2	0	2	71
			T2S	21,671	3	0	3	95	23,055	3	0	3	101	23,137	3	0	3	102	16,138	2	0	2	70
			T2M	21,707	3	0	3	96	23,093	3	0	3	102	23,176	3	0	3	102	16,165	2	0	3	70
			T3S	21,660	3	0	3	95	23,043	3	0	3	101	23,126	3	0	3	102	16,130	2	0	2	70
			T3M	21,702	3	0	4	95	23,088	3	0	4	102	23,171	3	0	4	102	16,161	2	0	3	70
			T4M	21,004	3	0	4	92	23,039	3	0	4	101	23,122	3	0	4	102	16,127	2	0	3	70
			TFTM	22,056	3	0	4	97	23,464	3	0	4	103	23,549	3	0	4	104	16,425	2	0	2	71
			TSVS	22,906	5	0	1	101	24,368	5	0	1	107	24,456	5	0	1	108	17,058	3	0	1	74
			T5S	22,894	4	0	2	101	24,355	4	0	2	107	24,442	4	0	2	108	17,048	3	0	1	73
			T5M	22,784	5	0	3	100	24,239	5	0	3	107	24,326	5	0	3	107	16,967	4	0	2	73
			TSW	22,498	5	0	3	99	23,935	5	0	3	105	24,021	5	0	3	106	16,754	4	0	2	72
			T1S	28,465	3	0	3	80	31,708	3	0	3	89	32,074	3	0	3	89	22,196	3	0	3	62
	T2S	29,257	3	0	3	82	31,125	3	0	3	88	31,237	3	0	3	87	21,787	3	0	3	61		
	T2M	29,306	3	0	3	82	31,177	3	0	3	87	31,289	3	0	3	88	21,824	3	0	3	61		
	T3S	29,243	3	0	3	82	31,109	3	0	3	88	31,221	3	0	3	87	21,776	3	0	3	60		
	T3M	29,299	3	0	4	82	31,170	3	0	4	87	31,282	3	0	4	88	21,819	3	0	3	61		
	T4M	28,356	3	0	4	79	31,104	3	0	4	86	31,216	3	0	4	87	21,773	3	0	3	60		
	TFTM	29,777	3	0	4	83	31,678	3	0	4	88	31,792	3	0	4	89	22,175	3	0	3	62		
	TSVS	30,924	5	0	1	87	32,898	5	0	1	93	33,017	5	0	1	92	23,029	4	0	1	64		
	T5S	30,908	4	0	2	87	32,880	4	0	2	91	32,999	4	0	2	92	23,016	4	0	1	64		
	T5M	30,760	5	0	3	86	32,723	5	0	3	92	32,841	5	0	3	92	22,906	4	0	2	64		
	TSW	30,374	5	0	3	85	32,313	5	0	3	91	32,429	5	0	3	91	22,619	4	0	2	64		

Performance Data

L90 and R90 Rotated Optics

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
90C (90 LEDs)	530 mA	150 W	T1S	15,409	3	0	3	103	16,392	3	0	3	109	16,451	3	0	3	110	11,475	3	0	3	76
			T2S	15,373	3	0	3	102	16,354	3	0	3	109	16,413	3	0	3	109	11,448	3	0	3	76
			T2M	15,399	4	0	4	103	16,381	4	0	4	109	16,440	4	0	4	110	11,467	3	0	3	76
			T3S	15,365	4	0	4	102	16,346	4	0	4	109	16,405	4	0	4	109	11,442	3	0	3	76
			T3M	15,395	4	0	4	103	16,378	4	0	4	109	16,437	4	0	4	110	11,464	4	0	4	76
			T4M	15,363	4	0	4	102	16,343	4	0	4	109	16,402	4	0	4	109	11,440	4	0	4	76
			TFTM	15,646	4	0	4	104	16,645	4	0	4	111	16,705	4	0	4	111	11,651	4	0	4	78
			TSVS	16,502	4	0	1	110	17,555	4	0	1	117	17,618	4	0	1	117	12,289	3	0	1	82
			T5S	16,085	4	0	1	107	17,112	4	0	1	114	17,174	4	0	1	114	11,978	3	0	1	80
			T5M	16,519	4	0	2	110	17,573	4	0	2	117	17,636	4	0	2	118	12,301	4	0	2	82
			T5W	16,260	4	0	2	108	17,298	5	0	3	115	17,360	5	0	3	116	12,109	4	0	2	81
	700 mA	206 W	T1S	19,320	4	0	4	94	20,553	4	0	4	100	20,627	4	0	4	100	14,387	3	0	3	70
			T2S	19,275	4	0	4	94	20,506	4	0	4	100	20,579	4	0	4	100	14,354	3	0	3	70
			T2M	19,307	4	0	4	94	20,540	4	0	4	100	20,614	4	0	4	100	14,378	4	0	4	70
			T3S	19,265	4	0	4	94	20,495	4	0	4	99	20,569	4	0	4	100	14,347	4	0	4	70
			T3M	19,303	4	0	4	94	20,535	4	0	4	100	20,609	4	0	4	100	14,374	4	0	4	70
			T4M	19,262	4	0	4	94	20,492	5	0	5	99	20,566	5	0	5	100	14,344	4	0	4	70
			TFTM	19,618	4	0	4	95	20,870	4	0	4	101	20,945	4	0	4	102	14,609	4	0	4	71
			TSVS	20,691	4	0	1	100	22,011	4	0	1	107	22,090	4	0	1	107	15,408	4	0	1	75
			T5S	20,168	4	0	1	98	21,533	4	0	1	105	21,533	4	0	1	105	15,019	4	0	1	73
			T5M	20,712	4	0	2	101	22,034	5	0	3	107	22,113	5	0	3	107	15,424	4	0	2	75
			T5W	20,388	5	0	3	99	21,689	5	0	3	105	21,767	5	0	3	106	15,182	4	0	2	74
	1000 mA	320 W	T1S	25,901	4	0	4	81	27,554	4	0	4	86	27,653	4	0	4	86	19,288	4	0	4	60
			T2S	25,840	4	0	4	81	27,490	4	0	4	86	27,588	4	0	4	86	19,243	4	0	4	60
			T2M	25,883	4	0	4	81	27,536	5	0	5	86	27,635	5	0	5	86	19,275	4	0	4	60
			T3S	25,827	4	0	4	81	27,476	4	0	4	86	27,574	4	0	4	86	19,233	4	0	4	60
			T3M	25,877	5	0	5	81	27,529	5	0	5	86	27,628	5	0	5	86	19,270	4	0	4	60
			T4M	25,823	5	0	5	81	27,471	5	0	5	86	27,570	5	0	5	86	19,230	4	0	4	60
			TFTM	26,299	5	0	5	82	27,978	5	0	5	87	28,079	5	0	5	88	19,585	4	0	4	61
			TSVS	27,738	5	0	1	87	29,508	5	0	1	92	29,614	5	0	1	93	20,656	4	0	1	65
			T5S	27,038	5	0	2	84	28,764	5	0	2	90	28,867	5	0	2	90	20,135	4	0	1	63
			T5M	27,766	5	0	3	87	29,538	5	0	3	92	29,645	5	0	3	93	20,677	4	0	2	65
			T5W	27,332	5	0	4	85	29,076	5	0	4	91	29,181	5	0	4	91	20,354	5	0	3	64

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	DSX2 LED 80C 1000			
	1.0	0.95	0.92	0.86
	DSX2 LED 100C 700			
	1.0	0.98	0.97	0.96
	DSX2 LED 100C 1000			
	1.0	0.94	0.90	0.84

Electrical Load

LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
80	530	137W	1.15	0.66	0.53	0.51	0.39	0.28
	700	188W	1.58	0.92	0.81	0.73	0.55	0.41
	1000	282W	2.37	1.35	1.18	1.04	0.83	0.61
100	530	175W	1.47	0.86	0.76	0.68	0.51	0.38
	700	232W	1.95	1.13	0.99	0.88	0.67	0.49
	1000	360W	3.03	1.72	1.49	1.3	1.05	0.77

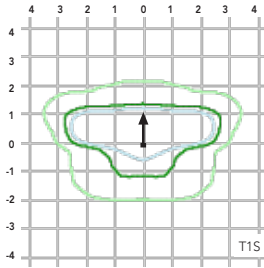
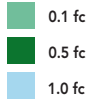


Photometric Diagrams

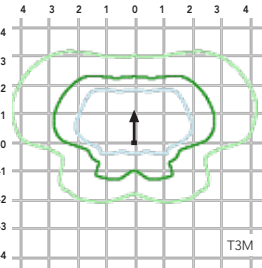
To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [D-Series Area Size 2 homepage](#).

Isofootcandle plots for the DSX2 LED 80C 1000 40K. Distances are in units of mounting height (30').

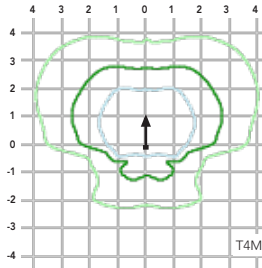
LEGEND



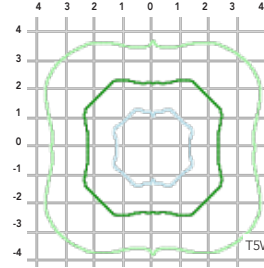
Test No. LTL22425P1 tested in accordance with IESNA LM-79-08.



Test No. LTL22424P1 tested in accordance with IESNA LM-79-08.



Test No. LTL22428P1 tested in accordance with IESNA LM-79-08.



Test No. LTL22430P1 tested in accordance with IESNA LM-79-08.

FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Area Size 2 reflects the embedded high performance LED technology. It is ideal for applications like car dealerships and large parking lots adjacent to malls, transit stations, grocery stores, home centers, and other big-box retailers.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED drivers are mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (2.0 ft²) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in 3000 K, 4000 K, or 5000 K (70 CRI) configurations. The D-Series Size 2 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine configurations consist of 80, 90 or 100 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L96/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily-serviceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION

Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 2 to withstand up to a 2.0 G vibration load rating per ANSI C136.31. The D-Series Size 2 utilizes the AERIS™ series pole drilling pattern (Template #8). NEMA photocontrol receptacle is available.

LISTINGS

UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D670,857 S. International patent pending.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.





D-Series Size 1 LED Area Luminaire

d^{series}



Catalog
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

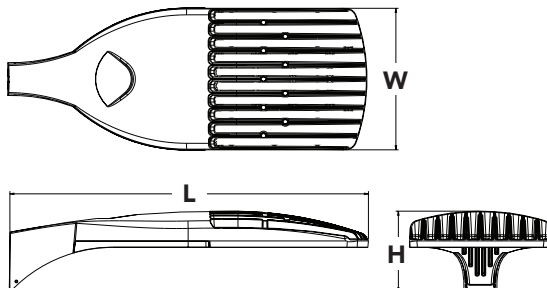
Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment.

The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing 100 – 400W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Specifications

EPA:	1.2 ft ² (0.11 m ²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height:	7-1/2" (19.0 cm)
Weight (max):	27 lbs (12.2 kg)



Ordering Information

EXAMPLE: DSX1 LED 60C 1000 40K T3M MVOLT SPA DDBXD

DSX1LED						
Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting
DSX1 LED	Forward optics 30C 30 LEDs (one engine) 40C 40 LEDs (two engines) 60C 60 LEDs (two engines) Rotated optics ¹ 60C 60 LEDs (two engines)	530 530 mA 700 700 mA 1000 1000 mA (1 A)	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted ²	T1S Type I Short T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium T5VS Type V Very Short T5S Type V Short T5M Type V Medium TSW Type V Wide	MVOLT ³ 120 ³ 208 ³ 240 ³ 277 ³ 347 ⁴ 480 ⁴	Shipped included SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor ⁵ RPUMBA Round pole universal mounting adaptor ⁵ Shipped separately ⁶ KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish) ⁴
Control options				Other options	Finish (required)	
Shipped installed PER NEMA twist-lock receptacle only (no controls) ⁷ PER5 Five-wire receptacle only (no controls) ^{7,8} PER7 Seven-wire receptacle only (no controls) ^{7,8} DMG 0-10V dimming driver (no controls) ⁹ DCR Dimmable and controllable via ROAM® (no controls) ¹⁰ DS Dual switching ^{11,12} PIR Motion sensor, 8-15' mounting height ¹³				Shipped installed HS House-side shield ¹⁵ WTB Utility terminal block ¹⁶ SF Single fuse (120, 277, 347V) ¹⁷ DF Double fuse (208, 240, 480V) ¹⁷ L90 Left rotated optics ¹⁸ R90 Right rotated optics ¹⁸	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white	
PIRH Motion sensor, 15-30' mounting height ¹³ BL30 Bi-level switched dimming, 30% ^{12,14} BL50 Bi-level switched dimming, 50% ^{12,14} PNMTDD3 Part night, dim till dawn ¹⁴ PNMT5D3 Part night, dim 5 hrs ¹⁴ PNMT6D3 Part night, dim 6 hrs ¹⁴ PNMT7D3 Part night, dim 7 hrs ¹⁴						

Controls & Shields

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ¹⁹
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ¹⁹
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ¹⁹
SCU	Shorting cap ¹⁹
DSX1HS 30C U	House-side shield for 30 LED unit
DSX1HS 40C U	House-side shield for 40 LED unit
DSX1HS 60C U	House-side shield for 60 LED unit
PUMBA DDBXD U*	Square and round pole universal mounting bracket (specify finish)
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish) ⁴

Accessories
Ordered and shipped separately.

NOTES

- 1 Rotated optics only available with 60C.
- 2 AMBPC only available with 530mA or 700mA.
- 3 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options).
- 4 Not available with single board, 530mA product (30C 530, or 60C 530 DS). Not available with DCR, BL30 or BL50.
- 5 Available as a separate combination accessory: PUMBA (finish) U; 1.5 G vibration load rating per ANCI C136.31.
- 6 Must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" mast arm (not included).
- 7 Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Not available with DS option.
- 8 If ROAM node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Not available with DCR.
- 9 DMG option for 347v or 480v requires 1000mA.
- 10 Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net. N/A with BL30, BL50, DS, PIR or PIRH.

- 11 Requires 40C or 60C. Provides 50/50 luminaire operation via two independent drivers on two separate circuits. N/A with PER, DCR, WTB, PIR, or PIRH.
- 12 Requires an additional switched circuit.
- 13 PIR specifies the [SensorSwitch SBGR-10-ODP](#) control; PIRH specifies the [SensorSwitch SBGR-6-ODP](#) control; see [Motion Sensor Guide](#) for details. Dimming driver standard. Not available with DS or DCR.
- 14 Dimming driver standard. MVOLT only. Not available with 347, 480, DCR, DS or PIRH.
- 15 Also available as a separate accessory; see Accessories information.
- 16 WTB not available with DS.
- 17 Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- 18 Available with 60 LEDs (60C option) only.
- 19 Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item from Acuity Brands Control.

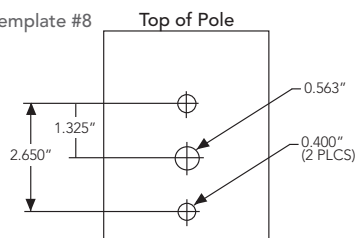


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DSX1-LED
Rev. 06/02/15

Drilling

Template #8



DSX1 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles, per the table below.

DM19AS	Single unit	DM29AS	2 at 90° *
DM28AS	2 at 180°	DM39AS	3 at 90° *
DM49AS	4 at 90° *	DM32AS	3 at 120° **

Example: SSA 20 4C DM19AS DDBXD

Visit Lithonia Lighting's **POLES CENTRAL** to see our wide selection of poles, accessories and educational tools.

*Round pole top must be 3.25" O.D. minimum.

**For round pole mounting (RPA) only.

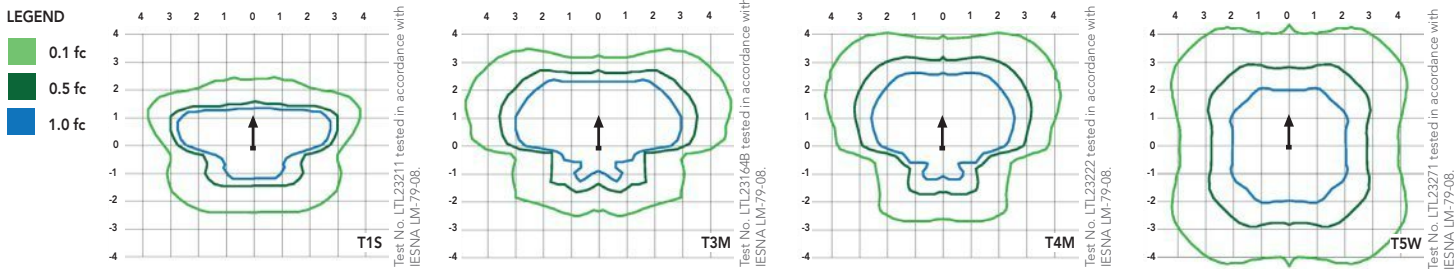
Tenon Mounting Slipfitter **

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [D-Series Area Size 1 homepage](#).

Isofootcandle plots for the DSX1 LED 60C 1000 40K. Distances are in units of mounting height (20').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient	Lumen Multiplier
0°C 32°F	1.02
10°C 50°F	1.01
20°C 68°F	1.00
25°C 77°F	1.00
30°C 86°F	1.00
40°C 104°F	0.99

Electrical Load

Number of LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
30	530	52	0.52	0.30	0.26	0.23	--	--
	700	68	0.68	0.39	0.34	0.30	0.24	0.17
	1000	105	1.03	0.59	0.51	0.45	0.36	0.26
40	530	68	0.67	0.39	0.34	0.29	0.23	0.17
	700	89	0.89	0.51	0.44	0.38	0.31	0.22
	1000	138	1.35	0.78	0.67	0.58	0.47	0.34
60	530	99	0.97	0.56	0.48	0.42	0.34	0.24
	700	131	1.29	0.74	0.65	0.56	0.45	0.32
	1000	209	1.98	1.14	0.99	0.86	0.69	0.50

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	DSX1 LED 60C 1000			
	1.0	0.95	0.93	0.88
	DSX1 LED 60C 700			
	1.0	0.99	0.98	0.96



Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
30C (30 LEDs)	700 mA	68 W	T1S	5,697	1	0	1	84	7,127	2	0	2	105	7,180	2	0	2	106	4,561	1	0	1	67
			T2S	5,967	2	0	2	88	7,465	2	0	2	110	7,521	2	0	2	111	4,777	1	0	1	70
			T2M	5,773	1	0	2	85	7,222	2	0	2	106	7,276	2	0	2	107	4,622	1	0	2	68
			T3S	5,901	1	0	2	87	7,382	2	0	2	109	7,437	2	0	2	109	4,724	1	0	1	69
			T3M	5,872	1	0	2	86	7,346	2	0	2	108	7,401	2	0	2	109	4,701	1	0	2	69
			T4M	5,882	1	0	2	87	7,359	2	0	2	108	7,414	2	0	2	109	4,709	1	0	2	69
			TFTM	5,793	1	0	2	85	7,247	1	0	2	107	7,301	1	0	2	107	4,638	1	0	2	68
			TSVS	6,148	2	0	0	90	7,691	3	0	1	113	7,749	3	0	1	114	4,922	2	0	0	72
			T5S	6,074	2	0	0	89	7,598	3	0	0	112	7,655	3	0	0	113	4,863	2	0	0	72
			T5M	6,150	3	0	1	90	7,694	3	0	2	113	7,752	3	0	2	114	4,924	3	0	1	72
	1000 mA	105 W	TSW	5,979	3	0	1	88	7,479	3	0	2	110	7,536	3	0	2	111	4,787	3	0	1	70
			T1S	7,913	2	0	2	75	9,899	2	0	2	94	9,973	2	0	2	95					
			T2S	8,288	2	0	2	79	10,368	2	0	2	99	10,446	2	0	2	99					
			T2M	8,019	2	0	2	76	10,031	2	0	3	96	10,106	2	0	3	96					
			T3S	8,196	2	0	2	78	10,253	2	0	2	98	10,330	2	0	2	98					
			T3M	8,156	2	0	2	78	10,202	2	0	2	97	10,279	2	0	2	98					
			T4M	8,170	2	0	2	78	10,220	2	0	2	97	10,297	2	0	2	98					
			TFTM	8,046	2	0	2	77	10,065	2	0	3	96	10,141	2	0	3	97					
			TSVS	8,539	3	0	1	81	10,682	3	0	1	102	10,762	3	0	1	102					
			T5S	8,436	3	0	1	80	10,553	3	0	1	101	10,632	3	0	1	101					
40C (40 LEDs)	700 mA	89 W	T5M	8,542	3	0	2	81	10,686	4	0	2	102	10,766	4	0	2	103					
			TSW	8,304	3	0	2	79	10,388	4	0	2	99	10,466	4	0	2	100					
			T1S	7,511	2	0	2	84	9,396	2	0	2	106	9,467	2	0	2	90	6,014	1	0	1	68
			T2S	7,868	2	0	2	88	9,842	2	0	2	111	9,916	2	0	2	94	6,299	2	0	2	71
			T2M	7,612	2	0	2	86	9,522	2	0	3	107	9,594	2	0	3	91	6,094	2	0	2	68
			T3S	7,780	2	0	2	87	9,733	2	0	2	109	9,806	2	0	2	93	6,229	1	0	2	70
			T3M	7,742	2	0	2	87	9,685	2	0	2	109	9,758	2	0	2	93	6,198	2	0	2	70
			T4M	7,756	2	0	2	87	9,702	2	0	2	109	9,775	2	0	2	93	6,209	1	0	2	70
			TFTM	7,638	2	0	2	86	9,555	2	0	2	107	9,627	2	0	2	92	6,115	1	0	2	69
			TSVS	8,106	3	0	1	91	10,140	3	0	1	114	10,216	3	0	1	97	6,490	2	0	0	73
	1000 mA	138 W	T5S	8,008	3	0	1	90	10,017	3	0	1	113	10,093	3	0	1	96	6,411	2	0	0	72
			T5M	8,109	3	0	2	91	10,144	4	0	2	114	10,220	4	0	2	97	6,492	3	0	1	73
			TSW	7,883	3	0	2	89	9,861	4	0	2	111	9,936	4	0	2	95	6,311	3	0	2	71
			T1S	10,384	2	0	2	75	12,990	3	0	3	94	13,088	3	0	3	95					
			T2S	10,876	2	0	2	79	13,606	3	0	3	99	13,708	3	0	3	99					
			T2M	10,523	2	0	3	76	13,164	3	0	3	95	13,263	3	0	3	96					
			T3S	10,756	2	0	2	78	13,455	2	0	2	97	13,556	3	0	3	98					
			T3M	10,703	2	0	2	78	13,389	3	0	3	97	13,490	3	0	3	98					
			T4M	10,722	2	0	2	78	13,412	3	0	3	97	13,513	3	0	3	98					
			TFTM	10,559	2	0	3	77	13,209	2	0	3	96	13,308	2	0	3	96					
60C (60 LEDs)	700 mA	131 W	TSVS	11,206	3	0	1	81	14,018	4	0	1	102	14,124	4	0	1	102					
			T5S	11,070	3	0	1	80	13,848	3	0	1	100	13,953	3	0	1	101					
			T5M	11,210	4	0	2	81	14,023	4	0	2	102	14,129	4	0	2	102					
			TSW	10,898	4	0	2	79	13,633	4	0	2	99	13,735	4	0	2	100					
			T1S	11,182	2	0	2	81	13,988	3	0	3	101	14,093	3	0	3	102	8,952	2	0	2	68
			T2S	11,712	3	0	3	85	14,651	3	0	3	106	14,761	3	0	3	107	9,377	2	0	2	72
			T2M	11,332	2	0	3	82	14,175	3	0	3	103	14,282	3	0	3	103	9,072	2	0	2	69
			T3S	11,582	2	0	2	84	14,489	3	0	3	105	14,598	3	0	3	106	9,273	2	0	2	71
			T3M	11,525	2	0	2	84	14,418	3	0	3	104	14,526	3	0	3	105	9,227	2	0	2	70
			T4M	11,546	2	0	2	84	14,443	3	0	3	105	14,552	3	0	3	105	9,243	2	0	2	71
	1000 mA	209 W	TFTM	11,370	2	0	3	82	14,224	2	0	3	103	14,331	2	0	3	104	9,103	2	0	2	69
			TSVS	12,067	3	0	1	87	15,095	4	0	1	109	15,209	4	0	1	110	9,661	3	0	1	74
			T5S	11,921	3	0	1	86	14,913	4	0	1	108	15,025	4	0	1	109	9,544	3	0	1	73
			T5M	12,071	4	0	2	87	15,101	4	0	2	109	15,214	4	0	2	110	9,665	3	0	2	74
			TSW	11,735	4	0	2	85	14,680	4	0	2	106	14,791	4	0	2	107	9,395	4	0	2	72
			T1S	15,307	3	0	3	73	19,148	3	0	3	92	19,292	3	0	3	92					
			T2S	16,033	3	0	3	77	20,056	3	0	3	96	20,207	3	0	3	97					
			T2M	15,512	3	0	3	74	19,405	3	0	3	93	19,551	3	0	3	94					
			T3S	15,855	3	0	3	76	19,834	3	0	3	95	19,983	3	0	3	96					
			T3M	15,777	3	0	3	75	19,736	3	0	4	94	19,885	3	0	4	95					
			T4M	15,805	3	0	3	76	19,771	3	0	4	95	19,920	3	0	4	95					
			TFTM	15,565	3	0	3	74	19,471	3	0	4	93	19,617	3	0	4	94					
			TSVS	16,519	4	0	1	79	20,664	4	0	1	99	20,820	4	0	1	100					
			T5S	16,319	4	0	1	78	20,414	4	0	1	98	20,567	4	0	1	98					
			T5M	16,525	4	0	2	79	20,672	5	0	3	99	20,827	5	0	3	100					
			TSW	16,065	4	0	3	77	20,096	5	0	3	96	20,247	5	0	3	97					

FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver is mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (1.2 ft²) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 4000 K (70 minimum CRI) or optional 3000 K (80 minimum CRI) or 5000 K (70 CRI) configurations. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine configurations consist of 30, 40 or 60 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L96/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an

expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV or 6kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION

Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 1 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 1 utilizes the AERIS™ series pole drilling pattern. Optional terminal block, tool-less entry, and NEMA photocontrol receptacle are also available.

LISTINGS

UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

Five-year limited warranty. Full warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.





D-Series Size 1 LED Area Luminaire

d^{series}



Catalog
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

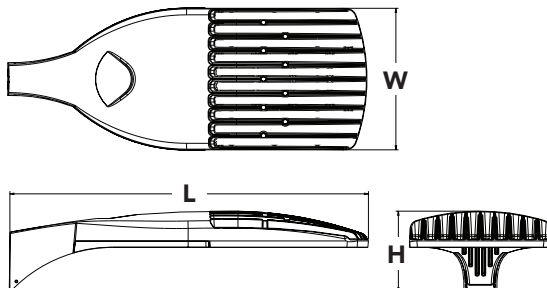
Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment.

The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing 100 – 400W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Specifications

EPA:	1.2 ft ² (0.11 m ²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height:	7-1/2" (19.0 cm)
Weight (max):	27 lbs (12.2 kg)



Ordering Information

EXAMPLE: DSX1 LED 60C 1000 40K T3M MVOLT SPA DDBXD

DSX1LED						
Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting
DSX1 LED	Forward optics 30C 30 LEDs (one engine) 40C 40 LEDs (two engines) 60C 60 LEDs (two engines) Rotated optics ¹ 60C 60 LEDs (two engines)	530 530 mA 700 700 mA 1000 1000 mA (1 A)	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted ²	T1S Type I Short T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium T5VS Type V Very Short T5S Type V Short T5M Type V Medium TSW Type V Wide	MVOLT ³ 120 ³ 208 ³ 240 ³ 277 ³ 347 ⁴ 480 ⁴	Shipped included SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor ⁵ RPUMBA Round pole universal mounting adaptor ⁵ Shipped separately ⁶ KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish) ⁴
Control options				Other options	Finish (required)	
Shipped installed PER NEMA twist-lock receptacle only (no controls) ⁷ PER5 Five-wire receptacle only (no controls) ^{7,8} PER7 Seven-wire receptacle only (no controls) ^{7,8} DMG 0-10V dimming driver (no controls) ⁹ DCR Dimmable and controllable via ROAM® (no controls) ¹⁰ DS Dual switching ^{11,12} PIR Motion sensor, 8-15' mounting height ¹³				Shipped installed HS House-side shield ¹⁵ WTB Utility terminal block ¹⁶ SF Single fuse (120, 277, 347V) ¹⁷ DF Double fuse (208, 240, 480V) ¹⁷ L90 Left rotated optics ¹⁸ R90 Right rotated optics ¹⁸	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white	
PIRH Motion sensor, 15-30' mounting height ¹³ BL30 Bi-level switched dimming, 30% ^{12,14} BL50 Bi-level switched dimming, 50% ^{12,14} PNMTDD3 Part night, dim till dawn ¹⁴ PNMT5D3 Part night, dim 5 hrs ¹⁴ PNMT6D3 Part night, dim 6 hrs ¹⁴ PNMT7D3 Part night, dim 7 hrs ¹⁴						

Controls & Shields

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ¹⁹
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ¹⁹
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ¹⁹
SCU	Shorting cap ¹⁹
DSX1HS 30C U	House-side shield for 30 LED unit
DSX1HS 40C U	House-side shield for 40 LED unit
DSX1HS 60C U	House-side shield for 60 LED unit
PUMBA DDBXD U*	Square and round pole universal mounting bracket (specify finish)
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish) ⁴

Accessories
Ordered and shipped separately.

NOTES

- 1 Rotated optics only available with 60C.
- 2 AMBPC only available with 530mA or 700mA.
- 3 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options).
- 4 Not available with single board, 530mA product (30C 530, or 60C 530 DS). Not available with DCR, BL30 or BL50.
- 5 Available as a separate combination accessory: PUMBA (finish) U; 1.5 G vibration load rating per ANCI C136.31.
- 6 Must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" mast arm (not included).
- 7 Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Not available with DS option.
- 8 If ROAM node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Not available with DCR.
- 9 DMG option for 347v or 480v requires 1000mA.
- 10 Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net. N/A with BL30, BL50, DS, PIR or PIRH.

- 11 Requires 40C or 60C. Provides 50/50 luminaire operation via two independent drivers on two separate circuits. N/A with PER, DCR, WTB, PIR, or PIRH.
- 12 Requires an additional switched circuit.
- 13 PIR specifies the [SensorSwitch SBGR-10-ODP](#) control; PIRH specifies the [SensorSwitch SBGR-6-ODP](#) control; see [Motion Sensor Guide](#) for details. Dimming driver standard. Not available with DS or DCR.
- 14 Dimming driver standard. MVOLT only. Not available with 347, 480, DCR, DS or PIRH.
- 15 Also available as a separate accessory; see Accessories information.
- 16 WTB not available with DS.
- 17 Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- 18 Available with 60 LEDs (60C option) only.
- 19 Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item from Acuity Brands Control.

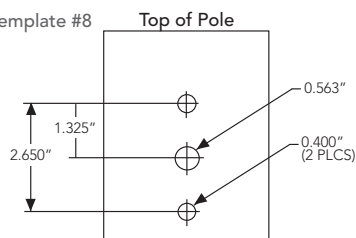


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DSX1-LED
Rev. 06/02/15

Drilling

Template #8



DSX1 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles, per the table below.

DM19AS	Single unit	DM29AS	2 at 90° *
DM28AS	2 at 180°	DM39AS	3 at 90° *
DM49AS	4 at 90° *	DM32AS	3 at 120° **

Example: SSA 20 4C DM19AS DDBXD

Visit Lithonia Lighting's **POLES CENTRAL** to see our wide selection of poles, accessories and educational tools.

*Round pole top must be 3.25" O.D. minimum.

**For round pole mounting (RPA) only.

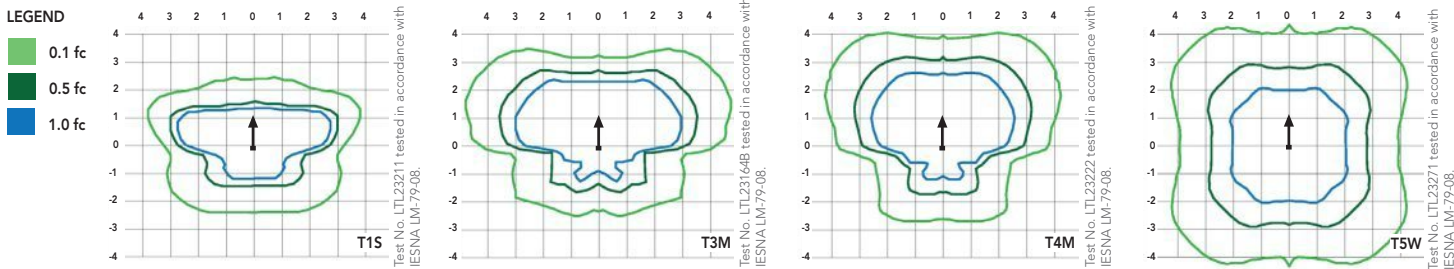
Tenon Mounting Slipfitter **

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [D-Series Area Size 1 homepage](#).

Isofootcandle plots for the DSX1 LED 60C 1000 40K. Distances are in units of mounting height (20').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient	Lumen Multiplier
0°C 32°F	1.02
10°C 50°F	1.01
20°C 68°F	1.00
25°C 77°F	1.00
30°C 86°F	1.00
40°C 104°F	0.99

Electrical Load

Number of LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
30	530	52	0.52	0.30	0.26	0.23	--	--
	700	68	0.68	0.39	0.34	0.30	0.24	0.17
	1000	105	1.03	0.59	0.51	0.45	0.36	0.26
40	530	68	0.67	0.39	0.34	0.29	0.23	0.17
	700	89	0.89	0.51	0.44	0.38	0.31	0.22
	1000	138	1.35	0.78	0.67	0.58	0.47	0.34
60	530	99	0.97	0.56	0.48	0.42	0.34	0.24
	700	131	1.29	0.74	0.65	0.56	0.45	0.32
	1000	209	1.98	1.14	0.99	0.86	0.69	0.50

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	DSX1 LED 60C 1000			
	1.0	0.95	0.93	0.88
	DSX1 LED 60C 700			
	1.0	0.99	0.98	0.96



Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
30C (30 LEDs)	700 mA	68 W	T1S	5,697	1	0	1	84	7,127	2	0	2	105	7,180	2	0	2	106	4,561	1	0	1	67
			T2S	5,967	2	0	2	88	7,465	2	0	2	110	7,521	2	0	2	111	4,777	1	0	1	70
			T2M	5,773	1	0	2	85	7,222	2	0	2	106	7,276	2	0	2	107	4,622	1	0	2	68
			T3S	5,901	1	0	2	87	7,382	2	0	2	109	7,437	2	0	2	109	4,724	1	0	1	69
			T3M	5,872	1	0	2	86	7,346	2	0	2	108	7,401	2	0	2	109	4,701	1	0	2	69
			T4M	5,882	1	0	2	87	7,359	2	0	2	108	7,414	2	0	2	109	4,709	1	0	2	69
			TFTM	5,793	1	0	2	85	7,247	1	0	2	107	7,301	1	0	2	107	4,638	1	0	2	68
			TSVS	6,148	2	0	0	90	7,691	3	0	1	113	7,749	3	0	1	114	4,922	2	0	0	72
			T5S	6,074	2	0	0	89	7,598	3	0	0	112	7,655	3	0	0	113	4,863	2	0	0	72
			T5M	6,150	3	0	1	90	7,694	3	0	2	113	7,752	3	0	2	114	4,924	3	0	1	72
	1000 mA	105 W	TSW	5,979	3	0	1	88	7,479	3	0	2	110	7,536	3	0	2	111	4,787	3	0	1	70
			T1S	7,913	2	0	2	75	9,899	2	0	2	94	9,973	2	0	2	95					
			T2S	8,288	2	0	2	79	10,368	2	0	2	99	10,446	2	0	2	99					
			T2M	8,019	2	0	2	76	10,031	2	0	3	96	10,106	2	0	3	96					
			T3S	8,196	2	0	2	78	10,253	2	0	2	98	10,330	2	0	2	98					
			T3M	8,156	2	0	2	78	10,202	2	0	2	97	10,279	2	0	2	98					
			T4M	8,170	2	0	2	78	10,220	2	0	2	97	10,297	2	0	2	98					
			TFTM	8,046	2	0	2	77	10,065	2	0	3	96	10,141	2	0	3	97					
			TSVS	8,539	3	0	1	81	10,682	3	0	1	102	10,762	3	0	1	102					
			T5S	8,436	3	0	1	80	10,553	3	0	1	101	10,632	3	0	1	101					
40C (40 LEDs)	700 mA	89 W	T5M	8,542	3	0	2	81	10,686	4	0	2	102	10,766	4	0	2	103					
			TSW	8,304	3	0	2	79	10,388	4	0	2	99	10,466	4	0	2	100					
			T1S	7,511	2	0	2	84	9,396	2	0	2	106	9,467	2	0	2	90	6,014	1	0	1	68
			T2S	7,868	2	0	2	88	9,842	2	0	2	111	9,916	2	0	2	94	6,299	2	0	2	71
			T2M	7,612	2	0	2	86	9,522	2	0	3	107	9,594	2	0	3	91	6,094	2	0	2	68
			T3S	7,780	2	0	2	87	9,733	2	0	2	109	9,806	2	0	2	93	6,229	1	0	2	70
			T3M	7,742	2	0	2	87	9,685	2	0	2	109	9,758	2	0	2	93	6,198	2	0	2	70
			T4M	7,756	2	0	2	87	9,702	2	0	2	109	9,775	2	0	2	93	6,209	1	0	2	70
			TFTM	7,638	2	0	2	86	9,555	2	0	2	107	9,627	2	0	2	92	6,115	1	0	2	69
			TSVS	8,106	3	0	1	91	10,140	3	0	1	114	10,216	3	0	1	97	6,490	2	0	0	73
	1000 mA	138 W	T5S	8,008	3	0	1	90	10,017	3	0	1	113	10,093	3	0	1	96	6,411	2	0	0	72
			T5M	8,109	3	0	2	91	10,144	4	0	2	114	10,220	4	0	2	97	6,492	3	0	1	73
			TSW	7,883	3	0	2	89	9,861	4	0	2	111	9,936	4	0	2	95	6,311	3	0	2	71
			T1S	10,384	2	0	2	75	12,990	3	0	3	94	13,088	3	0	3	95					
			T2S	10,876	2	0	2	79	13,606	3	0	3	99	13,708	3	0	3	99					
			T2M	10,523	2	0	3	76	13,164	3	0	3	95	13,263	3	0	3	96					
			T3S	10,756	2	0	2	78	13,455	2	0	2	97	13,556	3	0	3	98					
			T3M	10,703	2	0	2	78	13,389	3	0	3	97	13,490	3	0	3	98					
			T4M	10,722	2	0	2	78	13,412	3	0	3	97	13,513	3	0	3	98					
			TFTM	10,559	2	0	3	77	13,209	2	0	3	96	13,308	2	0	3	96					
60C (60 LEDs)	700 mA	131 W	TSVS	11,206	3	0	1	81	14,018	4	0	1	102	14,124	4	0	1	102					
			T5S	11,070	3	0	1	80	13,848	3	0	1	100	13,953	3	0	1	101					
			T5M	11,210	4	0	2	81	14,023	4	0	2	102	14,129	4	0	2	102					
			TSW	10,898	4	0	2	79	13,633	4	0	2	99	13,735	4	0	2	100					
			T1S	11,182	2	0	2	81	13,988	3	0	3	101	14,093	3	0	3	102	8,952	2	0	2	68
			T2S	11,712	3	0	3	85	14,651	3	0	3	106	14,761	3	0	3	107	9,377	2	0	2	72
			T2M	11,332	2	0	3	82	14,175	3	0	3	103	14,282	3	0	3	103	9,072	2	0	2	69
			T3S	11,582	2	0	2	84	14,489	3	0	3	105	14,598	3	0	3	106	9,273	2	0	2	71
			T3M	11,525	2	0	2	84	14,418	3	0	3	104	14,526	3	0	3	105	9,227	2	0	2	70
			T4M	11,546	2	0	2	84	14,443	3	0	3	105	14,552	3	0	3	105	9,243	2	0	2	71
	1000 mA	209 W	TFTM	11,370	2	0	3	82	14,224	2	0	3	103	14,331	2	0	3	104	9,103	2	0	2	69
			TSVS	12,067	3	0	1	87	15,095	4	0	1	109	15,209	4	0	1	110	9,661	3	0	1	74
			T5S	11,921	3	0	1	86	14,913	4	0	1	108	15,025	4	0	1	109	9,544	3	0	1	73
			T5M	12,071	4	0	2	87	15,101	4	0	2	109	15,214	4	0	2	110	9,665	3	0	2	74
			TSW	11,735	4	0	2	85	14,680	4	0	2	106	14,791	4	0	2	107	9,395	4	0	2	72
			T1S	15,307	3	0	3	73	19,148	3	0	3	92	19,292	3	0	3	92					
			T2S	16,033	3	0	3	77	20,056	3	0	3	96	20,207	3	0	3	97					
			T2M	15,512	3	0	3	74	19,405	3	0	3	93	19,551	3	0	3	94					
			T3S	15,855	3	0	3	76	19,834	3	0	3	95	19,983	3	0	3	96					
			T3M	15,777	3	0	3	75	19,736	3	0	4	94	19,885	3	0	4	95					
			T4M	15,805	3	0	3	76	19,771	3	0	4	95	19,920	3	0	4	95					
			TFTM	15,565	3	0	3	74	19,471	3	0	4	93	19,617	3	0	4	94					
			TSVS	16,519	4	0	1	79	20,664	4	0	1	99	20,820	4	0	1	100					
			T5S	16,319	4	0	1	78	20,414	4	0	1	98	20,567	4	0	1	98					
			T5M	16,525	4	0	2	79	20,672	5	0	3	99	20,827	5	0	3	100					
			TSW	16,065	4	0	3	77	20,096	5	0	3	96	20,247	5	0	3	97					

FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver is mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (1.2 ft²) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 4000 K (70 minimum CRI) or optional 3000 K (80 minimum CRI) or 5000 K (70 CRI) configurations. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine configurations consist of 30, 40 or 60 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L96/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an

expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV or 6kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION

Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 1 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 1 utilizes the AERIS™ series pole drilling pattern. Optional terminal block, tool-less entry, and NEMA photocontrol receptacle are also available.

LISTINGS

UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

Five-year limited warranty. Full warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.





D-Series Size 2 LED Wall Luminaire



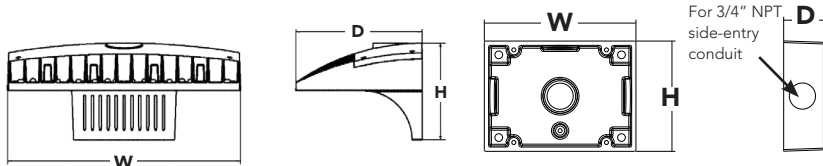
d^{series}

Specifications Luminaire

Width: 18-1/2" (47.0 cm)
Depth: 10" (25.4 cm)
Height: 7-5/8" (19.4 cm)

Back Box (BBW)

Width: 5-1/2" (14.0 cm)
Depth: 1-1/2" (3.8 cm)
Height: 4" (10.2 cm)
BBW Weight: 1 lbs (0.5 kg)



Catalog
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 76% in energy savings over comparable 400W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXW2 LED 30C 700 40K T3M MVOLT DDBTXD

DSXW2 LED																						
Series	LEDs	Drive Current		Color temperature		Distribution		Voltage	Mounting	Control Options		Other Options		Finish <i>(required)</i>								
DSXW2 LED	20C	20 LEDs (two engines)	350	350 mA	30K	3000 K	T2S	Type II Short	MVOLT ¹	Shipped included (blank) Surface mounting bracket	Shipped installed		Shipped installed		DDBXD	Dark bronze						
			530	530 mA	40K	4000 K			120 ¹		PE	Photoelectric cell, button type ⁴	SF	Single fuse (120, 277, 347V) ⁷	DBLXD	Black						
	30C	30 LEDs (three engines)	700	700 mA	50K	5000 K	T2M	Type II Medium	208 ¹	Shipped separately ³ BBW Surface-mounted back box (for conduit entry)	PER	NEMA twist-lock receptacle only (no controls)	DF	Double fuse (208, 240, 480V) ⁷	HS	House-side shield ³	DNAXD	Natural aluminum				
			1000	1000 mA (1 A)	AMBPC	Amber phosphor converted	T3S	Type III Short	240 ¹								DWHXD	White				
							T3M	Type III Medium	277 ¹								DSSXD	Sandstone				
									347 ²								DMG	0-10V dimming driver (no controls)	DDBTXD	Textured dark bronze		
									480 ²								DCR	Dimmable and controllable via ROAM® (no controls) ⁵	DBLBXD	Textured black		
							T4M	Type IV Medium									PIRH	180° motion/ambient light sensor, 15-30' mtg ht ⁶	BSW	Bird-deterrent spikes	DNATXD	Textured natural aluminum
							TFTM	Forward Throw Medium										WG	Wire guard	DWHGXD	Textured white	
							ASYDF	Asym-metric diffuse										VG	Vandal guard	DSSTXD	Textured sandstone	

NOTES

- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
- Available with 30 LED/700mA options only (DSXW2 LED 30C 700). DMG option not available.
- Also available as a separate accessory; see Accessories information.
- Photocontrol (PE) requires 120, 208, 240 or 277 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
- Specifies a ROAM[®] enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347V, 480V or PIRH. Additional hardware and services required for ROAM[®] deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net.
- Specifies the Sensor Switch SBGR-6-ODP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell) or DCR. Dimming driver standard.
- Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- See the electrical section on page 2 for more details.
- Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ⁹
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ⁹
DL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ⁹
SCU	Shorting cap ³
DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXW2WG U	Wire guard accessory
DSXW2VG U	Vandal guard accessory
DSXW2BBW DDBXD U	Back box accessory (specify finish)



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8/26/15 PC Meeting
360

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
20C (20 LEDs)	530	36 W	T2S	3,649	1	0	1	101	3,876	1	0	1	108	3,429	1	0	1	95
			T2M	3,478	1	0	1	97	3,694	1	0	1	103	3,267	1	0	1	91
			T3S	3,609	1	0	1	100	3,833	1	0	1	106	3,390	1	0	1	94
			T3M	3,572	1	0	1	99	3,794	1	0	1	105	3,356	1	0	1	93
			T4M	3,500	1	0	2	97	3,717	1	0	2	103	3,288	1	0	1	91
			TFTM	3,638	1	0	1	101	3,864	1	0	1	107	3,418	1	0	1	95
			ASYDF	3,252	1	0	2	90	3,454	1	0	2	96	3,056	1	0	2	85
			T2S	4,502	1	0	1	96	4,776	1	0	1	102	4,794	1	0	1	102
	700	47 W	T2M	4,290	1	0	1	91	4,552	1	0	1	97	4,569	1	0	1	97
			T3S	4,452	1	0	1	95	4,723	1	0	2	100	4,741	1	0	2	101
			T3M	4,407	1	0	2	94	4,675	1	0	2	99	4,693	1	0	2	100
			T4M	4,318	1	0	2	92	4,581	1	0	2	97	4,598	1	0	2	98
			TFTM	4,488	1	0	2	95	4,761	1	0	2	101	4,779	1	0	2	102
			ASYDF	4,012	1	0	2	85	4,257	1	0	2	91	4,273	1	0	2	91
			T2S	5,963	2	0	2	81	6,327	1	0	1	84	6,351	1	0	1	85
			T2M	5,683	2	0	2	77	6,029	1	0	2	80	6,052	1	0	2	81
	1000	74 W	T3S	5,896	1	0	2	80	6,256	1	0	2	83	6,280	1	0	2	84
			T3M	5,837	2	0	3	79	6,193	1	0	2	83	6,216	1	0	2	83
			T4M	5,719	1	0	2	77	6,067	1	0	2	81	6,090	1	0	2	81
			TFTM	5,944	1	0	2	80	6,307	1	0	2	84	6,330	1	0	2	84
			ASYDF	5,314	1	0	2	72	5,638	2	0	2	75	5,660	2	0	2	75
			T2S	4,333	1	0	1	80	5,280	1	0	1	98	5,769	1	0	1	107
			T2M	4,216	1	0	1	78	5,137	1	0	2	95	5,613	1	0	2	104
			T3S	4,279	1	0	1	79	5,214	1	0	1	97	5,696	1	0	1	105
30C (30 LEDs)	530	54 W	T3M	4,349	1	0	2	81	5,298	1	0	2	98	5,789	1	0	2	107
			T4M	4,291	1	0	1	79	5,228	1	0	2	97	5,712	1	0	2	106
			TFTM	4,287	1	0	1	79	5,223	1	0	2	97	5,707	1	0	2	106
			T2S	5,346	1	0	1	75	6,513	1	0	1	92	7,118	2	0	2	100
			T2M	5,201	1	0	2	73	6,337	2	0	2	89	6,925	2	0	2	98
			T3S	5,279	1	0	1	74	6,431	1	0	2	91	7,028	1	0	2	99
	700	71 W	T3M	5,365	1	0	2	76	6,536	1	0	2	92	7,143	2	0	3	101
			T4M	5,293	1	0	2	75	6,449	1	0	2	91	7,047	1	0	2	99
			TFTM	5,289	1	0	2	74	6,444	1	0	2	91	7,042	1	0	2	99
			T2S	7,137	2	0	2	65	8,697	2	0	2	80	9,501	2	0	2	87
			T2M	6,944	2	0	2	64	8,462	2	0	2	78	9,244	2	0	2	85
			T3S	7,047	1	0	2	65	8,588	1	0	2	79	9,381	2	0	2	86
	1000	109 W	T3M	7,162	2	0	3	66	8,728	2	0	3	80	9,534	2	0	3	87
			T4M	7,066	1	0	2	65	8,611	1	0	2	79	9,407	2	0	2	86
			TFTM	7,060	1	0	2	65	8,604	2	0	2	79	9,399	2	0	2	86

Note:

Available with phosphor-converted amber LED's (nomenclature AMBPC). These LED's produce light with 97+% >530 nm. Output can be calculated by applying a 0.7 factor to 4000 K lumen values and photometric files.

Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	1.00
40°C	104°F	0.98

Electrical Load

LEDs	Drive Current (mA)	System Watts	Current (A)					
			120V	208V	240V	277V	347V	480V
20C	350	25 W	0.23	0.13	0.12	0.10	-	-
	530	36 W	0.33	0.19	0.17	0.14	-	-
	700	47 W	0.44	0.25	0.22	0.19	-	-
	1000	73 W	0.68	0.39	0.34	0.29	-	-
30C	350	36 W	0.33	0.19	0.17	0.14	-	-
	530	54 W	0.50	0.29	0.25	0.22	-	-
	700	71 W	0.66	0.38	0.33	0.28	0.23	0.16
	1000	109 W	1.01	0.58	0.50	0.44	-	-

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **DSXW2 LED 30C 1000** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

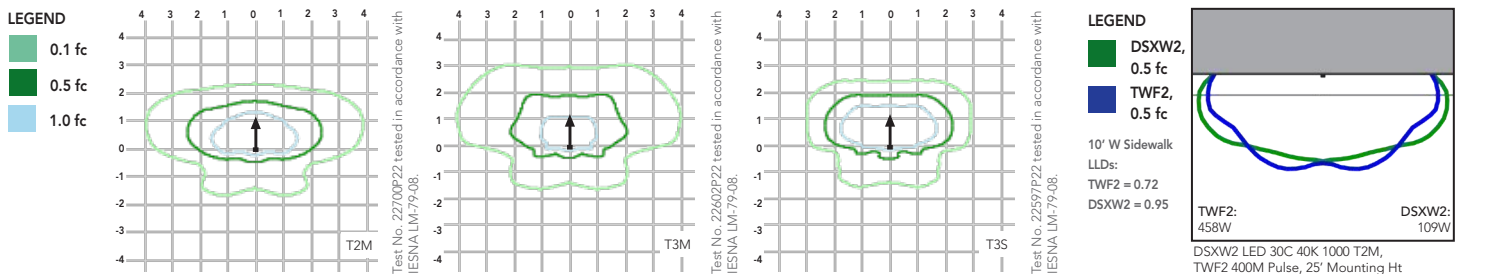
To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.95	0.92	0.87

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Wall Size 2 homepage.

Isofootcandle plots for the DSXW2 LED 30C 1000 40K. Distances are in units of mounting height (25').



FEATURES & SPECIFICATIONS

INTENDED USE

The energy savings, long life and easy-to-install design of the D-Series Wall Size 2 make it the smart choice for building-mounted doorway and pathway illumination for nearly any facility.

CONSTRUCTION

Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65).

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifically to building mounted applications. Light engines are available in 3000 K (80 min. CRI), 4000 K (70 min. CRI) or 5000 K (70 CRI) configurations.

ELECTRICAL

Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L87/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and a minimum 2.5KV surge rating. When ordering the SPD option, a separate surge protection device is installed within the luminaire which meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION

Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS

CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.





D-Series Size 2 LED Wall Luminaire



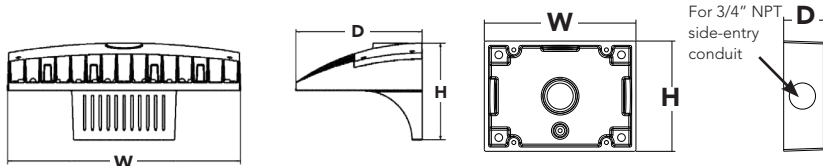
d^{series}

Specifications Luminaire

Width:	18-1/2" (47.0 cm)	Weight:	21 lbs (9.5 kg)
Depth:	10" (25.4 cm)		
Height:	7-5/8" (19.4 cm)		

Back Box (BBW)

Width:	5-1/2" (14.0 cm)	BBW Weight:	1 lbs (0.5 kg)
Depth:	1-1/2" (3.8 cm)		
Height:	4" (10.2 cm)		



Catalog
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 76% in energy savings over comparable 400W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXW2 LED 30C 700 40K T3M MVOLT DDBTXD

DSXW2 LED															
Series	LEDs	Drive Current		Color temperature		Distribution		Voltage	Mounting	Control Options		Other Options		Finish <i>(required)</i>	
DSXW2 LED	20C	20 LEDs (two engines)	350	350 mA	30K	3000 K	T2S	Type II Short	MVOLT ¹	Shipped included (blank) Surface mounting bracket 					

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
20C (20 LEDs)	530	36 W	T2S	3,649	1	0	1	101	3,876	1	0	1	108	3,429	1	0	1	95
			T2M	3,478	1	0	1	97	3,694	1	0	1	103	3,267	1	0	1	91
			T3S	3,609	1	0	1	100	3,833	1	0	1	106	3,390	1	0	1	94
			T3M	3,572	1	0	1	99	3,794	1	0	1	105	3,356	1	0	1	93
			T4M	3,500	1	0	2	97	3,717	1	0	2	103	3,288	1	0	1	91
			TFTM	3,638	1	0	1	101	3,864	1	0	1	107	3,418	1	0	1	95
			ASYDF	3,252	1	0	2	90	3,454	1	0	2	96	3,056	1	0	2	85
	700	47 W	T2S	4,502	1	0	1	96	4,776	1	0	1	102	4,794	1	0	1	102
			T2M	4,290	1	0	1	91	4,552	1	0	1	97	4,569	1	0	1	97
			T3S	4,452	1	0	1	95	4,723	1	0	2	100	4,741	1	0	2	101
			T3M	4,407	1	0	2	94	4,675	1	0	2	99	4,693	1	0	2	100
			T4M	4,318	1	0	2	92	4,581	1	0	2	97	4,598	1	0	2	98
			TFTM	4,488	1	0	2	95	4,761	1	0	2	101	4,779	1	0	2	102
			ASYDF	4,012	1	0	2	85	4,257	1	0	2	91	4,273	1	0	2	91
	1000	74 W	T2S	5,963	2	0	2	81	6,327	1	0	1	84	6,351	1	0	1	85
			T2M	5,683	2	0	2	77	6,029	1	0	2	80	6,052	1	0	2	81
			T3S	5,896	1	0	2	80	6,256	1	0	2	83	6,280	1	0	2	84
			T3M	5,837	2	0	3	79	6,193	1	0	2	83	6,216	1	0	2	83
			T4M	5,719	1	0	2	77	6,067	1	0	2	81	6,090	1	0	2	81
			TFTM	5,944	1	0	2	80	6,307	1	0	2	84	6,330	1	0	2	84
			ASYDF	5,314	1	0	2	72	5,638	2	0	2	75	5,660	2	0	2	75
30C (30 LEDs)	530	54 W	T2S	4,333	1	0	1	80	5,280	1	0	1	98	5,769	1	0	1	107
			T2M	4,216	1	0	1	78	5,137	1	0	2	95	5,613	1	0	2	104
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			T3M	5,365	1	0	2	76	6,536	1	0	2	92	7,143	2	0	3	101
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Note:

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Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

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0°C	32°F	1.02
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			120V	208V	240V	277V	347V	480V
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	1000	73 W	0.68	0.39	0.34	0.29	-	-
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	1000	109 W	1.01	0.58	0.50	0.44	-	-

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **DSXW2 LED 30C 1000** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

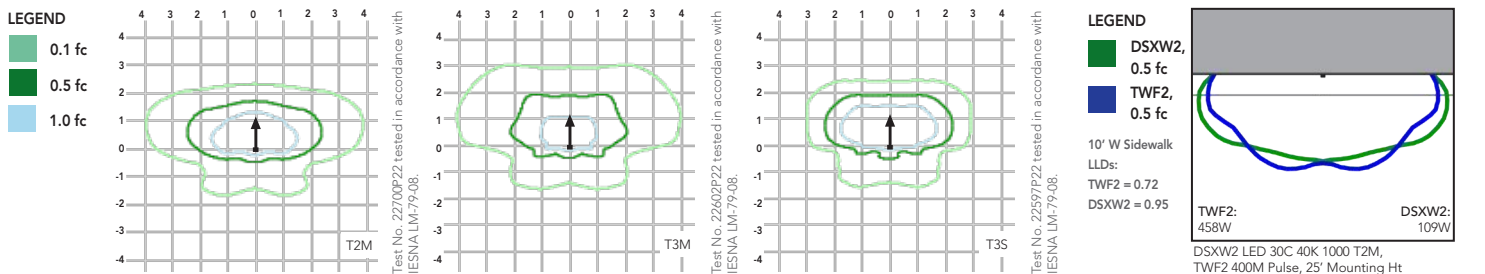
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Lumen Maintenance Factor	1.0	0.95	0.92	0.87

Photometric Diagrams

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Isofootcandle plots for the DSXW2 LED 30C 1000 40K. Distances are in units of mounting height (25').



FEATURES & SPECIFICATIONS

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INSTALLATION

Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS

CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.



Memorandum



808 SW 3rd Avenue
Suite 300
Portland, OR 97204
Phone (503) 287-6825
Fax (503) 415-2304

To: Zach Pelz, AICP City of West Linn Associate Planner
From: Gary Alfson, PE
Mike Peebles, PE
Copies: Pete Miller, Otak, Inc.
Mike Robinson, Perkins Coie
Mike Mahoney, ConAm
Date: July 20, 2015
Subject: West Linn Completeness Letter dated July 16, 2015,
Planning File No. DR-15-11/LLA-15-01
Project No.: 17122

RE: Application for proposed mixed-use development at the northwest corner of Tannler Drive and Blankenship Road.

The following are responses to completeness items provided by the City of West Linn in the July 16, 2015 completeness determination letter: (*City comments in italics*, Otak responses follow)

1. 55.070(C)
 - a. 99.038(E)(4) - *A copy of the minutes of the meetings, produced by the neighborhood association, or the applicant if the NA did not produce minutes.*

Response: Meeting minutes have been added to Appendix B (Neighborhood Meeting Documents) of the application.

2. 55.070(D)(2)(a-i)
 - a. Site Analysis per CDC 55.110
 - i. 55.110(B)(6)(d) - *Site analysis must include areas shown on Map 17 as areas vulnerable to landslide.*

Response: Map 17 area shown on Sheet P1.3 in NE corner of the site. A reference to Map 17 and the project area has been added to Appendix F (Geotechnical Report) of the application.

- b. Site Plan per CDC 55.120
 - ii. 55.120(E) - *site plan must show easements on site and on adjacent properties.*
 - iii. 55.120(F)(2) - *the site plan must show the location, dimensions and setback distances of all existing structures and driveways on adjoining properties.*

Response: Information added on sheets P1.2 and P2.1

e. *Landscape Plan per CDC 55.150*

i. *55.150(B)(1) - the landscape plan does not detail the proposed erosion control measures.*

Response: A new sheet EC1.0 (Preliminary Erosion Control) has been added to the plan set.

f. *Please include a graphic or drawing to depict the various luminaires proposed throughout the site.*

Response: Luminaire cut sheets have been added to Appendix G (Lighting Report) of the application.

3. *46.030(H) - requires that the plan show specifications for parking area signage and bumper guards.*

Response: Information added on sheet P2.1

4. *Traffic Impact Analysis -*

a. *Proposed mitigations for Blankenship Rd/ Tannler Dr do not adequately address the project traffic impacts shown. Applicant should further evaluate potential mitigation strategies (right-in, right out, signalization, realignment, etc.) for this intersection and include strategies to maintain pre-development operating conditions (or better).*

b. *Compatibility with long-range transportation system plan improvements for Tannler Drive needs to be addressed. This development would preclude the preferred Tannler Drive realignment alternative from the 2008 City of West Linn Transportation System Plan.*

c. *Additional traffic from the proposed project does indeed contribute to the operational issues at 10" Street/g" Avenue, including increased vehicle queuing. Update discussion of this in the TIA and provide ideas for how this project could mitigate its impacts to this intersection.*

Response: An updated Traffic Impact Analysis has been included as Appendix E (Traffic Impact Report)

5. *Other Engineering-related details required*

a. *Please show the access to the stormwater detention pond.*

Response: Added to sheets P3.0 and P4.0.

b. *Please show the proposed street lighting on the site plan.*

Response: Added Tannler Drive street light symbols to sheet P2.0.

c. *Please show the proposed stormwater treatment/ detention facility that will capture runoff from a new sidewalk along the west side of Tannler Dr.*

Response: Added proposed LIDA facility along Tannler Drive to sheet P2.0, P2.1, and P3.0.

d. *Please correct conflicting information regarding right-of-way dedication along Tannler Dr.: two-feet is proposed on page 29 of the submittal but a 1-foot dedication is shown on the site plan (P2.1).*

Response: Updated narrative to reference 1-foot dedication to match site plan (P2.1).

e. Please show an 8-foot public utility easement along Tannler Drive.

Response: Added to sheet P1.2.

f. Please correct conflicting information regarding the width of parking and travel lanes along Tannler Dr.: page 29 of the submittal mentions an 11-foot parking lane and 13-foot travel lane; however, an 8-foot parking lane and 14-foot travel lane are shown on the site plan (page P1.1) and a 9-foot parking lane and 13-foot travel lane are shown on page P2.1.

Response: Updated narrative to reference parking (8') and travel lane (13') widths on Tannler Drive to match site plan (P2.1).

g. The 26-foot wide proposed driveway approach on Tannler Dr (including the standard 6-foot) wings will exceed the maximum approach width of 36-feet.

Response: Driveway approach revised to 24' throat with 6' wings (total width 36') as shown on sheet P2.1.

h. Please show the water meter in a public easement or in the public right-of-way.

Response: Added to sheet P4.0.

i. Please show a manhole at the connection of the sanitary sewer.

Response: Added to sheet P4.0.

j. Please show the proposed pavement improvements along Tannler Dr.

Response: No additional pavement widening is proposed on Tannler Drive. Limits of Tannler Drive frontage improvements are hatched on sheet P2.0

k. Please correct the striping plan on Tannler Dr. to terminate the on-street parking at an appropriate distance from the proposed left turn lane.

Response: Updated striping and labeling for on-street parking on Tannler Drive on sheet P2.1.

l. Please show the mitigation plan at 10th and Blankenship (Figure 10, page 42 of the Traffic Impact Analysis) on the site plan set.

Response: Added new sheet P2.2. to the plan set.

July 20, 2015

Michael C. Robinson
MRobinson@perkinscoie.com
D. +1.503.727.2264
F. +1.503.346.2264

VIA MESSENGER

Mr. Zach Pelz
City of West Linn Planning and Building Department
22500 Salamo Road, Suite 1000
West Linn, OR 97068

**Re: City of West Linn Planning File Numbers DR-15-11/LLA-15-01;
Applicant's Response to July 16, 2015 Incompleteness Determination**

Dear Mr. Pelz:

This office represents the applicant, ConAm Properties, LLC in the above-referenced applications. This letter responds to the incompleteness determination pursuant to ORS 227.178(3) by the City of West Linn (the "City") dated July 16, 2015.

ConAm Properties, LLC has submitted all of the missing information listed in Items 1-5 of the July 16, 2015 letter pursuant to ORS 227.178(2)(a). The application is deemed complete for purposes of ORS 227.178(1) upon receipt today, July 20, 2015, by the City of all of the missing materials.

Please let me know if you have any questions.

Very truly yours,



Michael C. Robinson

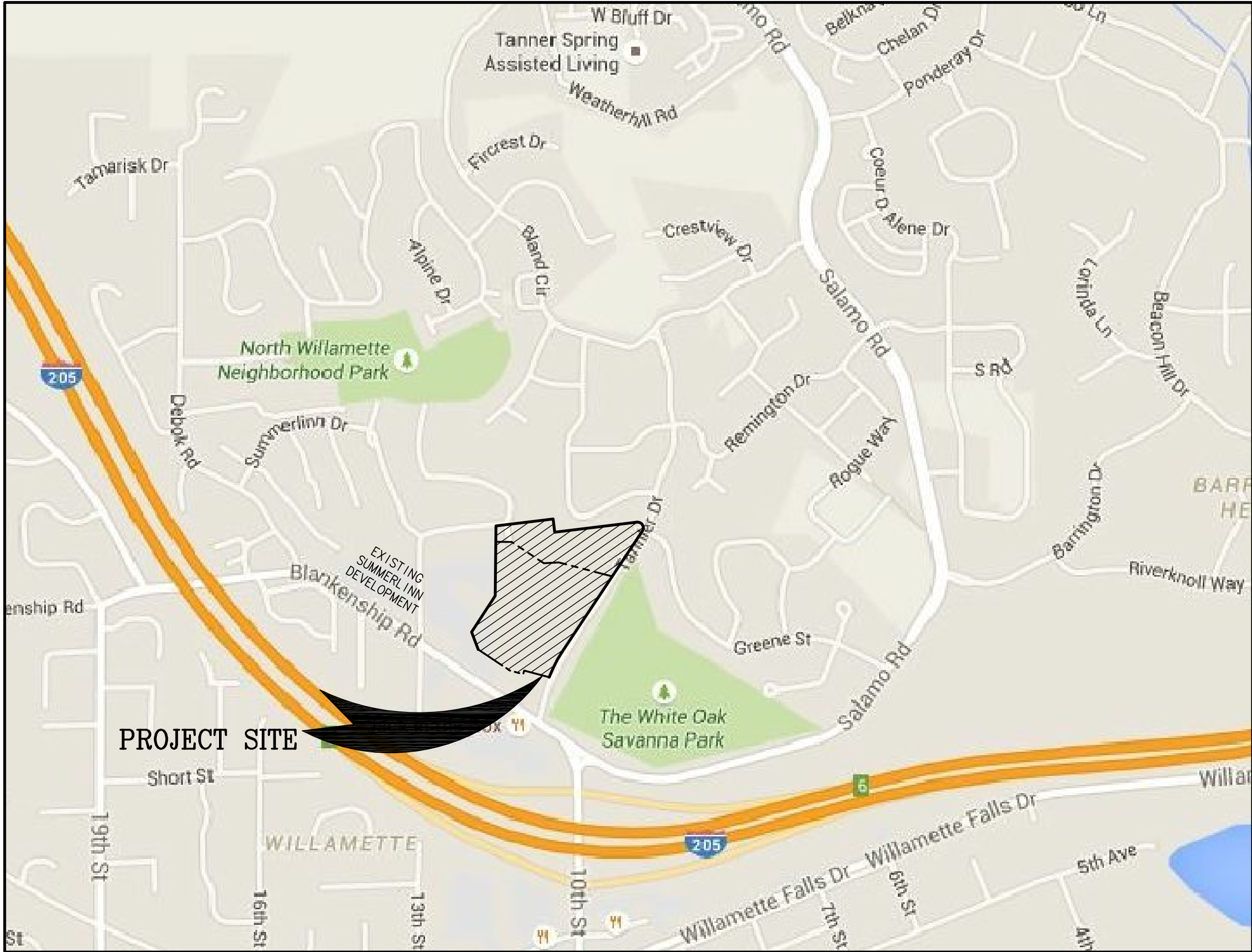
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Enclosures

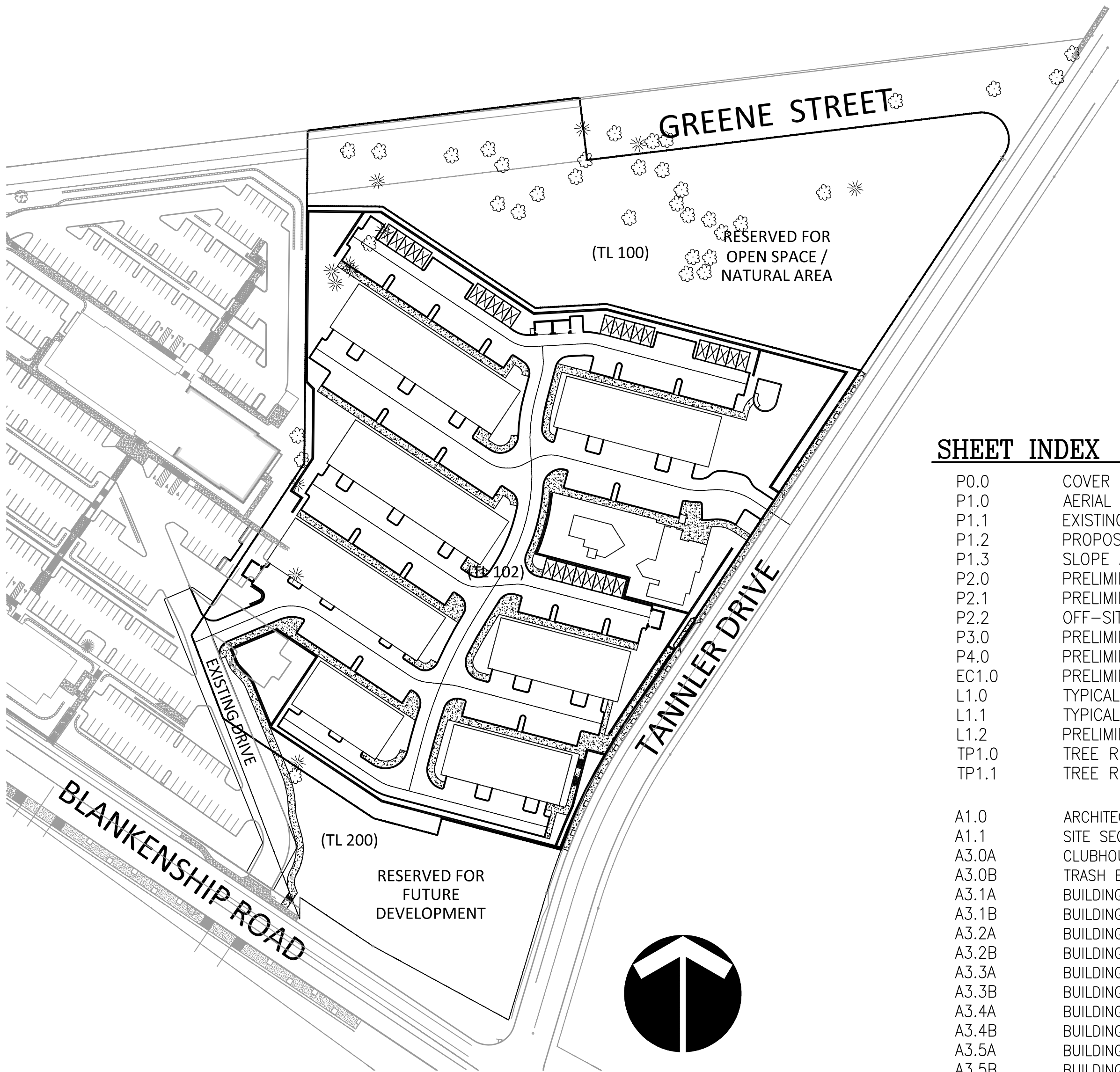
cc: Mr. Mike Mahoney (via email) (w/o encls.)
Mr. Rob Morgan (via email) (w/o encls.)
Mr. Pete Miller (via email) (w/o encls.)
Mr. Gary Alfson (via email) (w/o encls.)
Mr. John Boyd (via email) (w/o encls.)

TANNER DRIVE MIXED-USE DEVELOPMENT
CLASS II DESIGN REVIEW REQUEST & PROPERTY LINE ADJUSTMENT
CITY OF WEST LINN, OREGON

XREF LIST
Ltscale: 1
Resolved
016--WEST SITE
P17122X230
P17122X001A
016XTOPO
--Images--
Wlmap2



VICINITY MAP
N.T.S.



PROJECT MAP
N.T.S.

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A3.7A	BUILDING TYPE 7 ELEVATIONS
A3.7B	BUILDING TYPE 7 ELEVATIONS
A4.0	SITE INFORMATION SIGN
A4.1	BUILDING SIGNAGE

OWNERS

NAME: JEFFREY I. PARKER AND WILLIAM S. WILT
ADDRESS: 1800 BLANKENSHIP ROAD, SUITE 200
WEST LINN, OR 97068

APPLICANT/DEVELOPER

NAME: CONAM PROPERTIES, LLC
CONTACT: ROB MORGAN
ADDRESS: 3990 RUFFIN ROAD, SUITE 100
SAN DIEGO, CA 92123
PHONE: (858) 614-7378

ARCHITECT/CIVIL ENGINEER

NAME: OTAK INCORPORATED
ENGINEER: GARY ALFSON, P.E.
ARCHITECT: RON DEAN, AIA
ADDRESS: 808 SW THIRD AVENUE, SUITE 300
PORTLAND, OR 97204
PHONE: (503) 287-6825
FAX: (503) 415-2304

ARBORIST CONSULTANT

NAME: MORGAN HOLLEN & ASSOCIATES
CONTACT: MORGAN HOLLEN
ADDRESS: 3 MONROE PARKWAY, SUITE P 220
LAKE OSWEGO, OR 97035
PHONE: (503) 971-409-9354
FAX:

TRAFFIC ENGINEER

NAME: MACKENZIE
CONTACT: BRENT AHREND
ADDRESS: PO BOX 14310
PORTLAND, OR 97293
PHONE: (503) 224-9560
FAX: (503) 228-1285

GEOTECHNICAL ENGINEER

NAME: GEODESIGN, INC.
CONTACT: GEORGE SAUNDERS, P.E.
ADDRESS: 15575 SW SEQUOIA PKWY, SUITE 100
PORTLAND, OR 97224
PHONE: (503) 968-8787

SITE INFORMATION

TAX LOTS 100 AND 102 OF CCTM 2S 1E 35C

SITE DESIGN REVIEW APPLICATION SITE INCLUDES ADJUSTED
TAX LOTS 100 AND 102. THIS AREA EQUALS 10.19 ACRES

TAX LOT 200 IS INCLUDED FOR PURPOSES OF PROPERTY LINE
ADJUSTMENT APPLICATION TO INCREASE THE SIZE OF TAX LOT
102 PRIOR TO DEVELOPMENT.

LAND USE PLANNER/ATTORNEY

NAME: MICHAEL ROBINSON
CONTACT: PERKINS COIE LLP
ADDRESS: 1120 NW COUCH STREET, TENTH FLOOR
PORTLAND, OR 97209-4128
PHONE: (503) 727-2000

LIGHTING DESIGNER

NAME: RICK HARRISON, PE
CONTACT: MEC ENGINEERING, INC.
ADDRESS: 520 SW 6TH AVE, SUITE 640
PORTLAND, OR 97204
PHONE: (503) 250-4863

LAND USE SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

TANNER DRIVE MIXED-USE DEVELOPMENT

WEST LINN, OREGON

COVER SHEET

PRELIMINARY

ConAm Properties, LLC
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HanmiGlobal Partner
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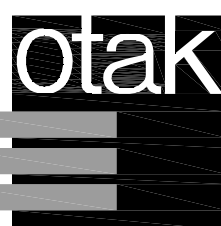


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TANGLER DRIVE MIXED-USE DEVELOPMENT

AERIAL PHOTO/SITE ANALYSIS PLAN



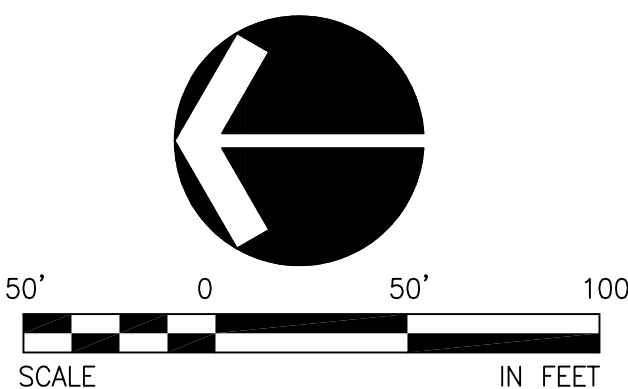
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LAND USE SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

TANNER DRIVE MIXED-USE DEVELOPMENT

WEST LINN, OREGON

EXISTING CONDITIONS PLAN

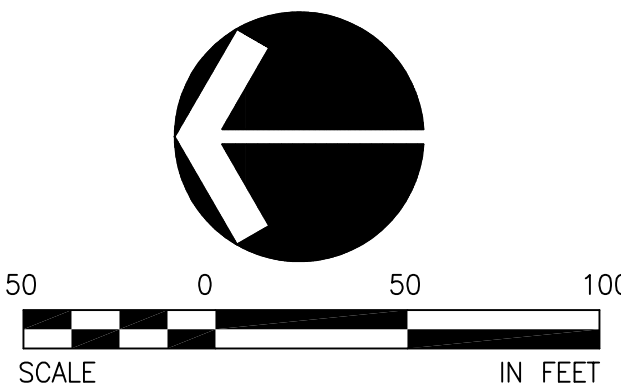


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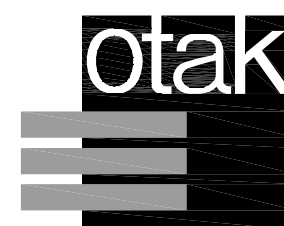
016-WEST SITE EXISTING



SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

TANNER DRI

PROPERTY LINE ADJUSTMENT PLAN



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P1.2

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①	7/20/19		COMPLETENESS REVIEW	
②	8/04/19		REVISIONS PER TV&R COMMENTS	
Design	Drawn	Checked	Date	Initial Issue Date:





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SAN DIEGO, CA 92123
PHONE: (858) 614-7200
FAX: (858) 614-1646

The map displays a topographic site with contour lines and shaded slope areas. A dashed line indicates the 'APPROXIMATE BOUNDARY OF LANDSLIDE VULNERABILITY FROM MAP 17, WEST LINN NATURAL HAZARDS MITIGATION PLAN'. A legend identifies four slope categories: 0.00% to 15.00% (lightest), 15.00% to 25.00%, 25.00% to 35.00%, and 35.00% to 500.00% (darkest). The map includes labels for 'SLOPE' with an arrow, 'TL 100', 'TL 102', and 'TL 200'. A scale bar (0 to 50 feet) and a north arrow are in the top right. A table titled 'SLOPES TABLE' provides area data for each slope category.

SLOPES TABLE				
NUMBER	MINIMUM SLOPE	MAXIMUM SLOPE	AREA	CO
1	0.00%	15.00%	108707.61	
2	15.00%	25.00%	236026.58	
3	25.00%	35.00%	73241.44	
4	35.00%	500.00%	26806.15	
TOTAL			444781	

SITE CONTAINS: NO FLOODPLAIN
NO WATER RESOURCES

SLOPES TABLE					
NUMBER	MINIMUM SLOPE	MAXIMUM SLOPE	AREA	COLOR	% OF TOTAL
1	0.00%	15.00%	108707.61		24.4
2	15.00%	25.00%	236026.58		53.1
3	25.00%	35.00%	73241.44		16.5
4	35.00%	500.00%	26806.15		6.0

SITE CONTAINS: NO FLOODPLAIN
NO WATER RESOURCES

[illegible]


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LAND USE SUBMITTAL 7/10/2015 – NOT FOR CONSTRUCTION

TANNER DRIVE MIXED-USE DEVELOPMENT
WEST LINN, OREGON

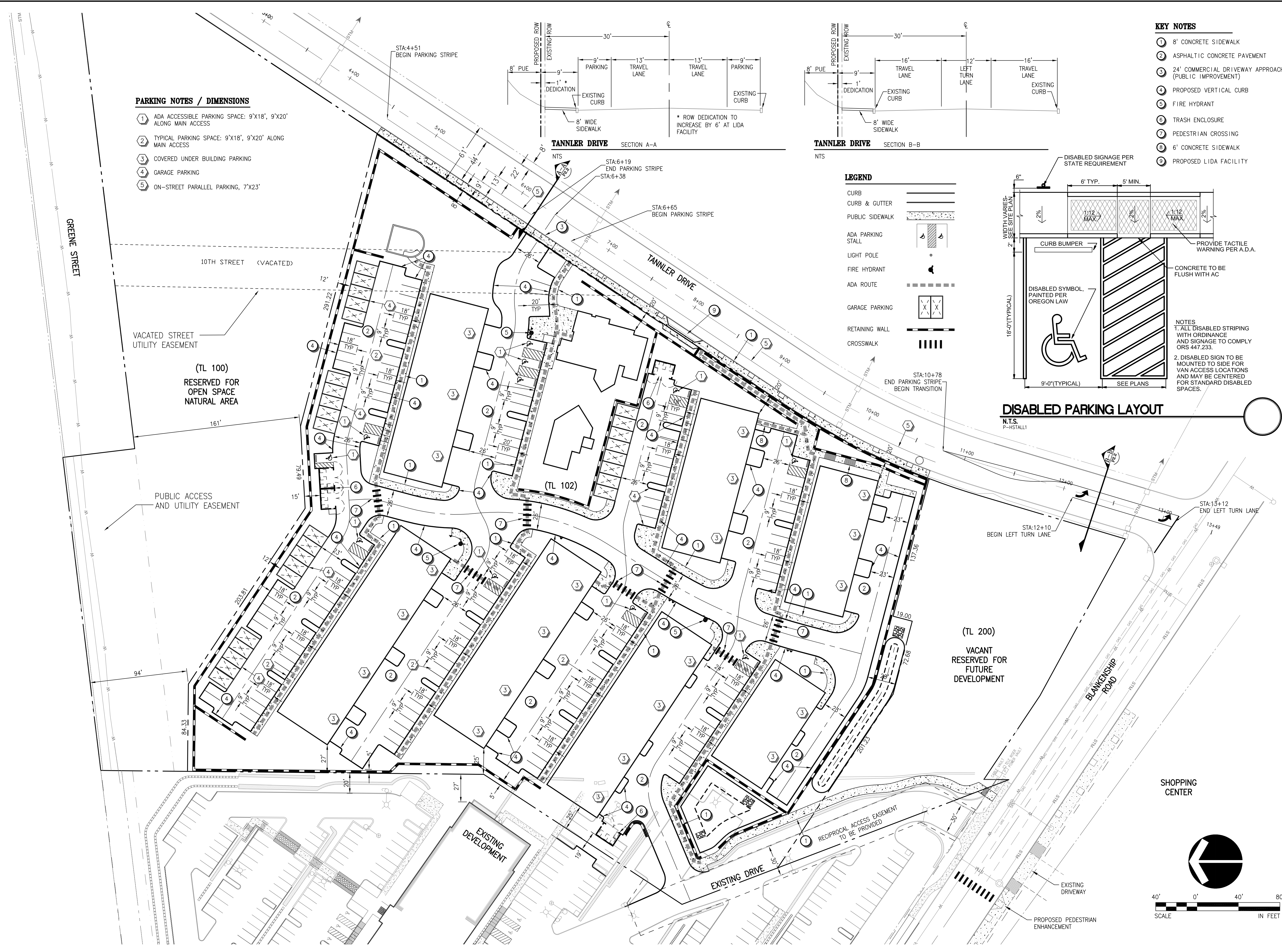
SLOPE ANALYSIS PLAN


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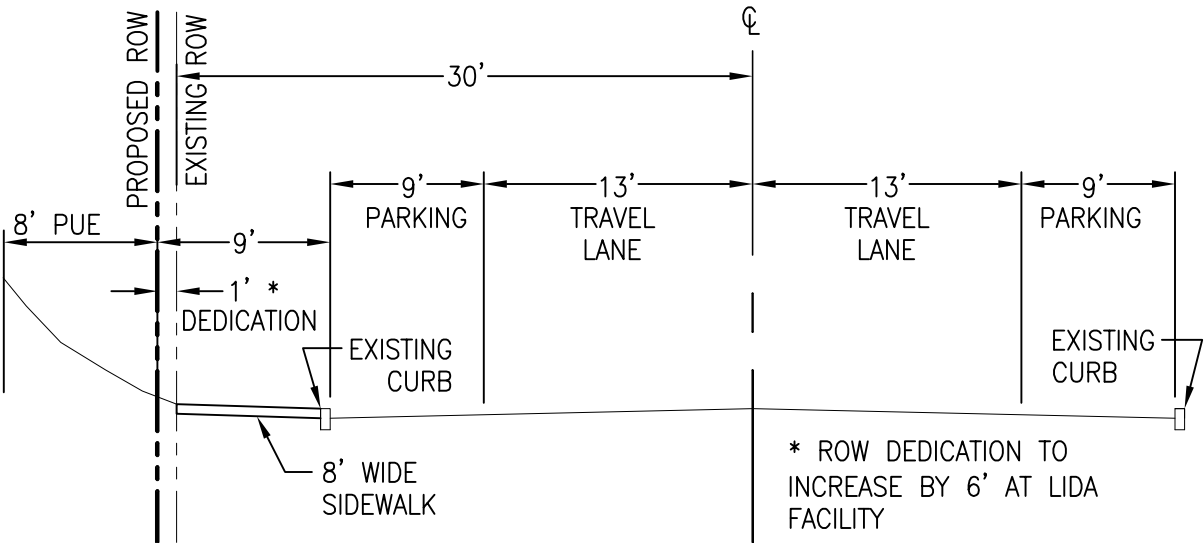
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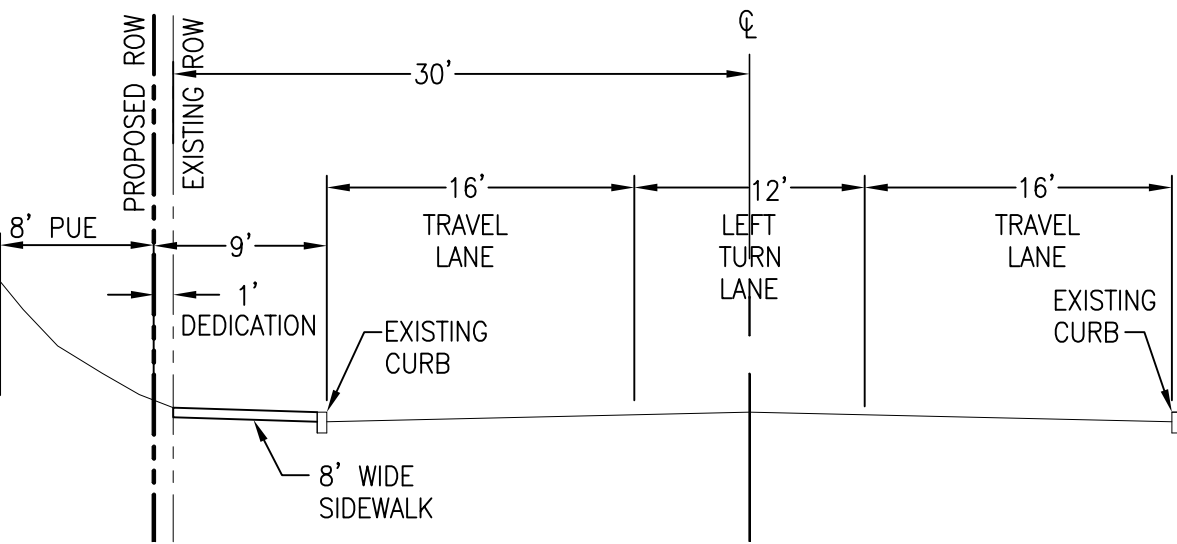
PARKING NOTES / DIMENSIONS

- 1 ADA ACCESSIBLE PARKING SPACE: 9'X18', 9'X20' ALONG MAIN ACCESS
- 2 TYPICAL PARKING SPACE: 9'X18', 9'X20' ALONG MAIN ACCESS
- 3 COVERED UNDER BUILDING PARKING
- 4 GARAGE PARKING
- 5 ON-STREET PARALLEL PARKING, 7'X23'

TANNER DRIVE SECTION A-A



TANNER DRIVE SECTION B-B



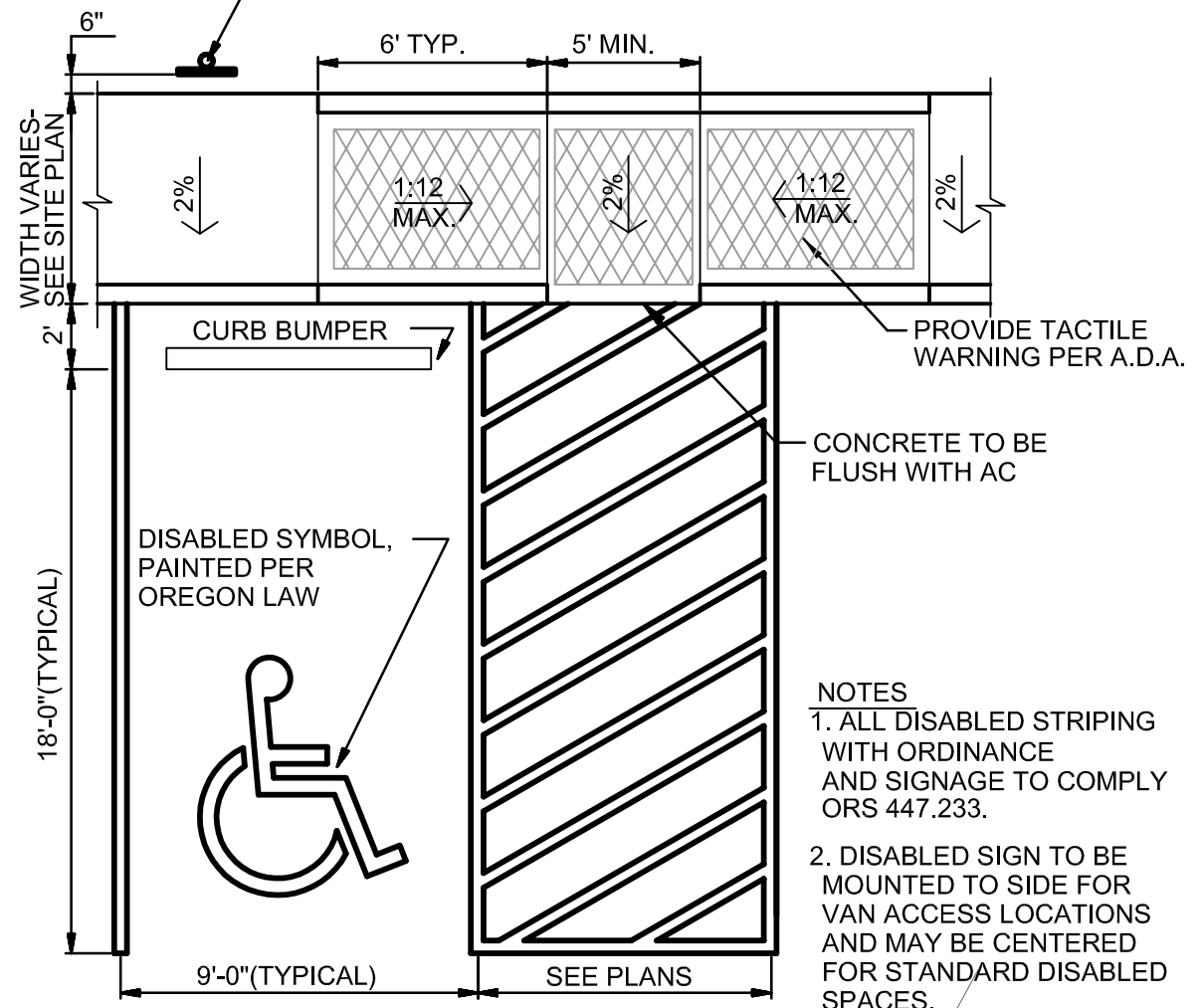
LEGEND

- CURB
- CURB & GUTTER
- PUBLIC SIDEWALK
- ADA PARKING STALL
- LIGHT POLE
- FIRE HYDRANT
- ADA ROUTE
- GARAGE PARKING
- RETAINING WALL
- CROSSWALK

KEY NOTES

- 1 8' CONCRETE SIDEWALK
- 2 ASPHALTIC CONCRETE PAVEMENT
- 3 24' COMMERCIAL DRIVEWAY APPROACH (PUBLIC IMPROVEMENT)
- 4 PROPOSED VERTICAL CURB
- 5 FIRE HYDRANT
- 6 TRASH ENCLOSURE
- 7 PEDESTRIAN CROSSING
- 8 6' CONCRETE SIDEWALK
- 9 PROPOSED LIDA FACILITY

DISABLED PARKING LAYOUT



LAND USE SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

TANNER DRIVE MIXED-USE DEVELOPMENT

WEST LINN, OREGON

PRELIMINARY SITE DIMENSION PLAN

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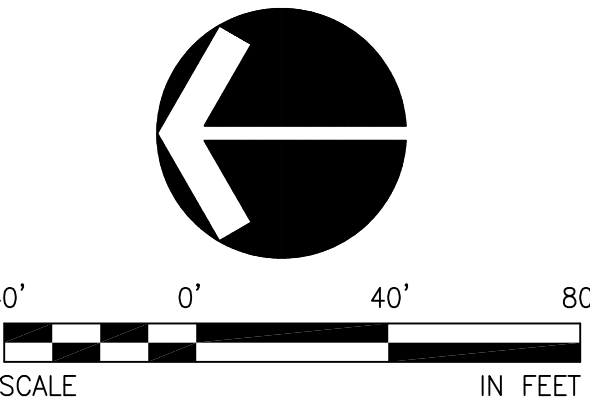
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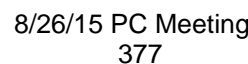
ConAm Properties, LLC
3990 RUFFIN ROAD, SUITE 100
SAN DIEGO, CA 92123
PHONE: (858) 614-7200
FAX: (858) 614-1846

NO.	DATE	BY	REVISION COMMENTS
1	7/20/15		COMPLETENESS REVIEW
2	8/04/15		REVISIONS PER TYP&R COMMENTS

Design	Drawn	Checked	Date	Initial	Issue	Date
MAP	SLR	BS	05/02			



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TANNER DRIVE MIXED-USE DEVELOPMENT
WEST LINN, OREGON

17122 P17122P22
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P2.2
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XREF LIST
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P17122X001A
P17122X430



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LAND USE SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

TANNER DRIVE MIXED-USE DEVELOPMENT
WEST LINN, OREGON

PRELIMINARY GRADING PLAN

PRELIMINARY

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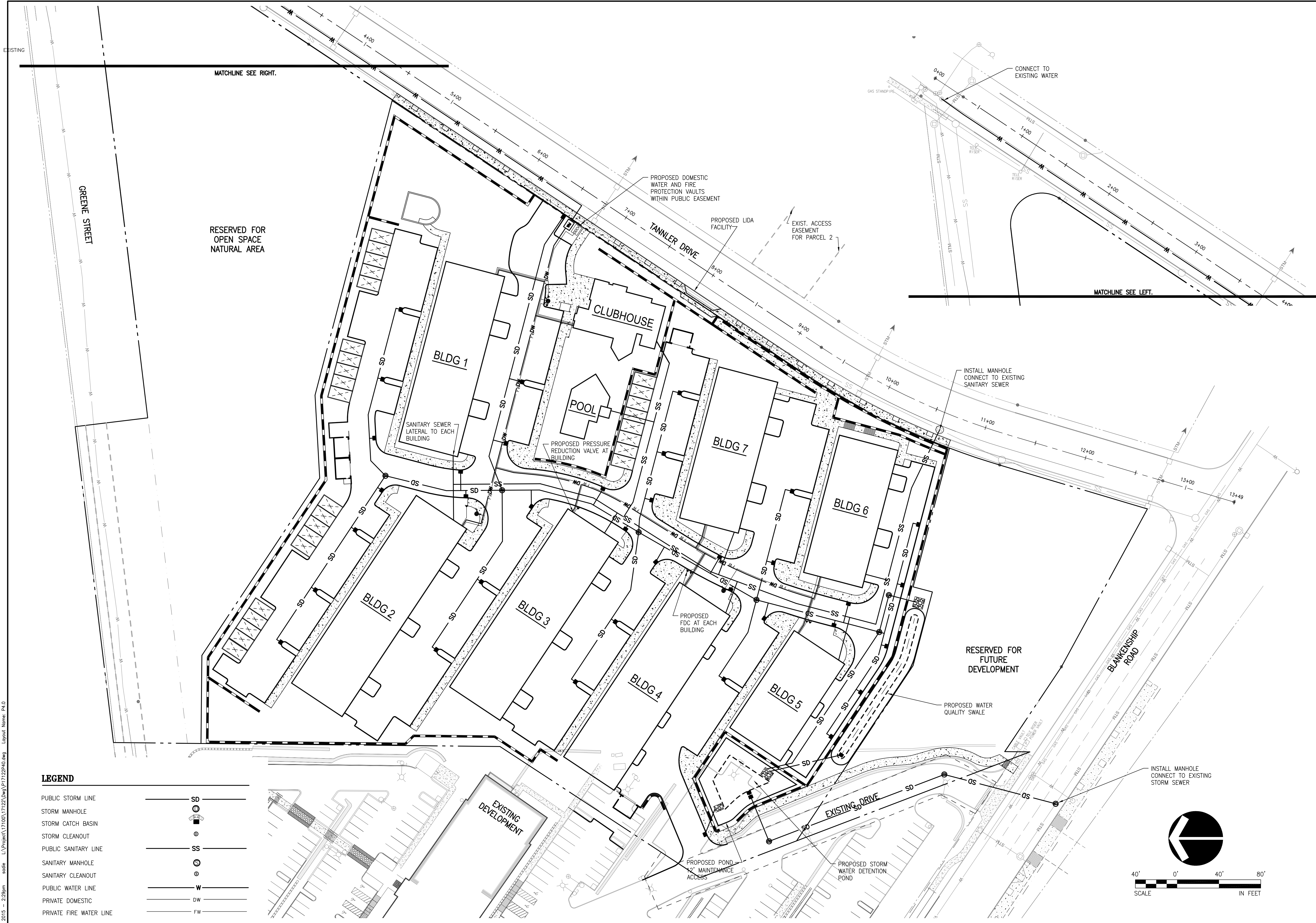
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2	8/04/15		REVISIONS PER TYP&R COMMENTS

Design	Drawn	Checked	Date	Initial	Issue	Date:
MAP	SLR	BS				05/02














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XREF LIST
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Resolved
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P17122X230
016--WEST SITE EXISTING
016XTOPO
P17122X001A
P17122X430

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LEGEND

- | | |
|-------------------------|---|
| PUBLIC STORM LINE |  |
| STORM MANHOLE |  |
| STORM CATCH BASIN |  |
| STORM CLEANOUT |  |
| PUBLIC SANITARY LINE |  |
| SANITARY MANHOLE |  |
| SANITARY CLEANOUT |  |
| PUBLIC WATER LINE |  |
| PRIVATE DOMESTIC |  |
| PRIVATE FIRE WATER LINE |  |
| WATER BLOWOFF |  |
| FIRE HYDRANT |  |

LAND USE SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

TANNER DRIVE MIXED-USE DEVELOPMENT

WEST LINN, OREGON

PRELIMINARY COMPOSITE UTILITY PLAN

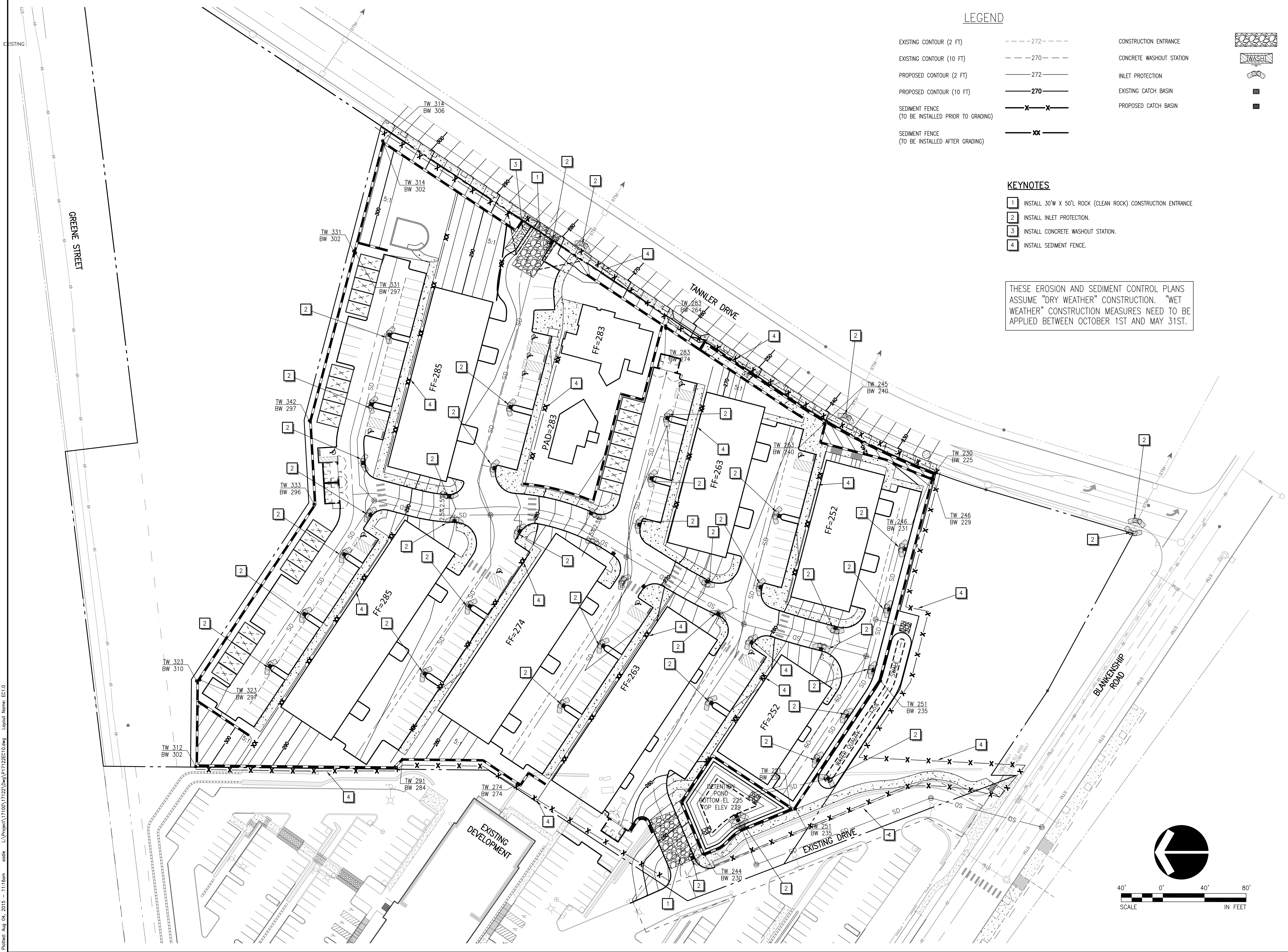
PRELIMINARY

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3990 RUFFIN ROAD, SUITE 100
SAN DIEGO, CA 92123
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XREF LIST
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016--WEST SITE
016XTOPD
P17122X001A
P17122X430
P17122X600



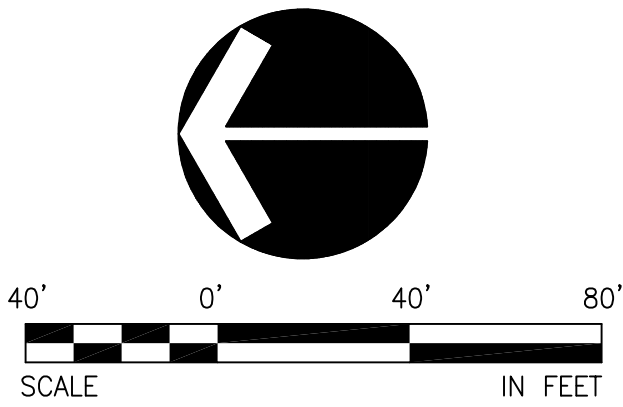
LEGEND

- EXISTING CONTOUR (2 FT) ---272---
EXISTING CONTOUR (10 FT) ---270---
PROPOSED CONTOUR (2 FT) ---272---
PROPOSED CONTOUR (10 FT) ---270---
SEDIMENT FENCE (TO BE INSTALLED PRIOR TO GRADING) ---X---
SEDIMENT FENCE (TO BE INSTALLED AFTER GRADING) ---XX---
- CONSTRUCTION ENTRANCE
CONCRETE WASHOUT STATION
INLET PROTECTION
EXISTING CATCH BASIN
PROPOSED CATCH BASIN

KEYNOTES

- 1 INSTALL 30'W X 50'L ROCK (CLEAN ROCK) CONSTRUCTION ENTRANCE.
2 INSTALL INLET PROTECTION.
3 INSTALL CONCRETE WASHOUT STATION.
4 INSTALL SEDIMENT FENCE.

THESE EROSION AND SEDIMENT CONTROL PLANS ASSUME "DRY WEATHER" CONSTRUCTION. "WET WEATHER" CONSTRUCTION MEASURES NEED TO BE APPLIED BETWEEN OCTOBER 1ST AND MAY 31ST.



LAND USE SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

TANNER DRIVE MIXED-USE DEVELOPMENT
WEST LINN, OREGON

PRELIMINARY EROSION CONTROL PLAN

otak
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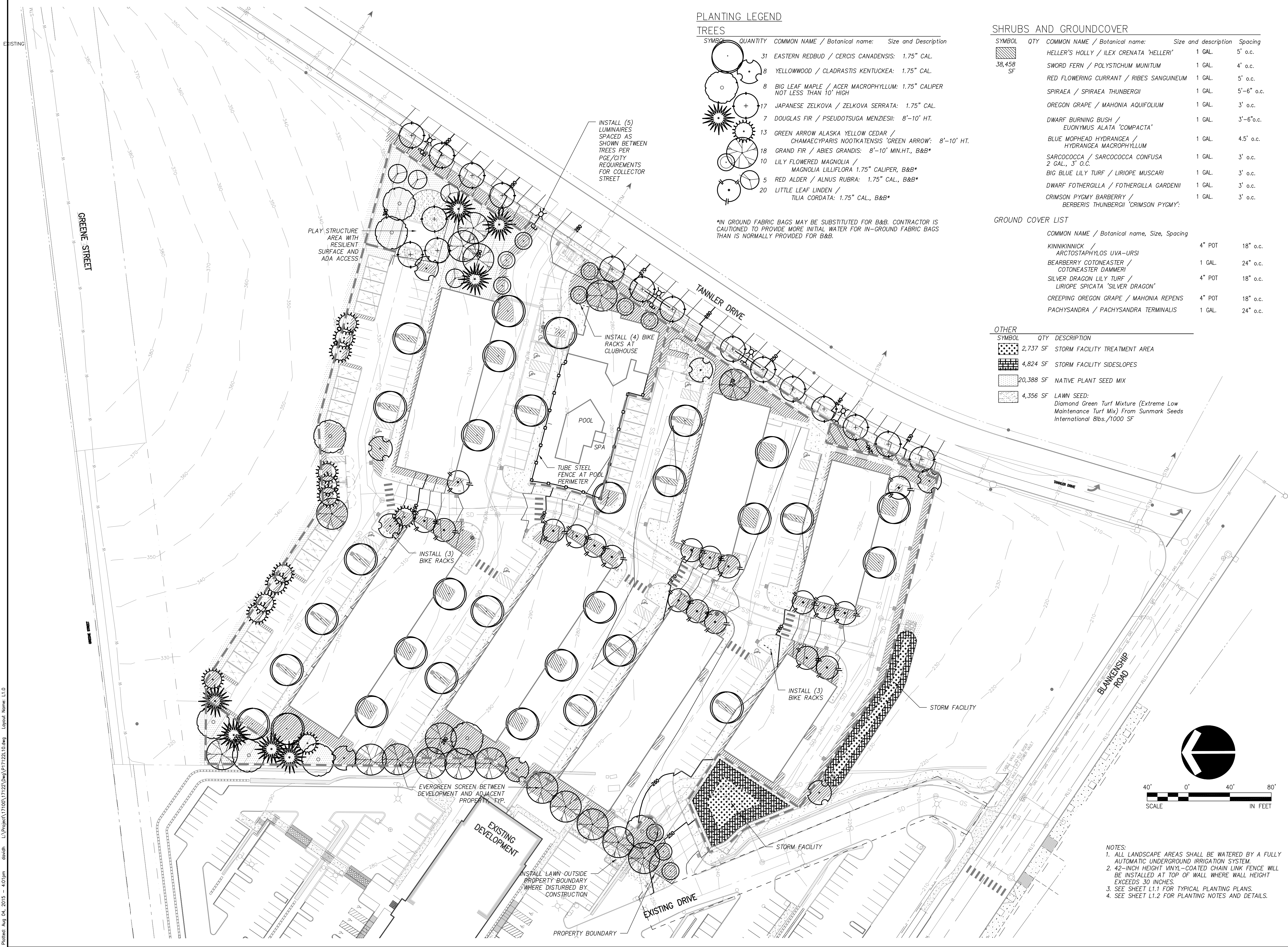
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1	7/20/15		COMPLETENESS REVIEW
2	8/04/15		REVISIONS PER TV&R COMMENTS

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P17122X230
016-WEST SITE
016XTOPO
P17122X001A
P17122X430



PLANTING LEGEND

TREES

SYMBOL	QUANTITY	COMMON NAME / Botanical name:	Size and Description
	31	EASTERN REDBUD / CERIS CANADENSIS:	1.75" CAL.
	8	YELLOWWOOD / CLADRASTIS KENTUCKEA:	1.75" CAL.
	8	BIG LEAF MAPLE / ACER MACROPHYLLUM:	1.75" CALIPER NOT LESS THAN 10' HIGH
	17	JAPANESE ZELKOVA / ZELKOVA SERRATA:	1.75" CAL.
	7	DOUGLAS FIR / PSEUDOTSUGA MENZIESII:	8'-10' HT.
	13	GREEN ARROW ALASKA YELLOW CEDAR / CHAMAECYPARIS NOOTKATENSIS 'GREEN ARROW':	8'-10' HT.
	18	GRAND FIR / ABIES GRANDIS:	8'-10' MIN.HT., B&B*
	10	LILY FLOWERED MAGNOLIA / MAGNOLIA LILLIFLORA:	1.75" CALIPER, B&B*
	5	RED ALDER / ALNUS RUBRA:	1.75" CAL., B&B*
	20	LITTLE LEAF LINDEN / TLIA CORDATA:	1.75" CAL., B&B*

*IN GROUND FABRIC BAGS MAY BE SUBSTITUTED FOR B&B. CONTRACTOR IS CAUTIONED TO PROVIDE MORE INITIAL WATER FOR IN-GROUND FABRIC BAGS THAN IS NORMALLY PROVIDED FOR B&B.

SHRUBS AND GROUNDCOVER

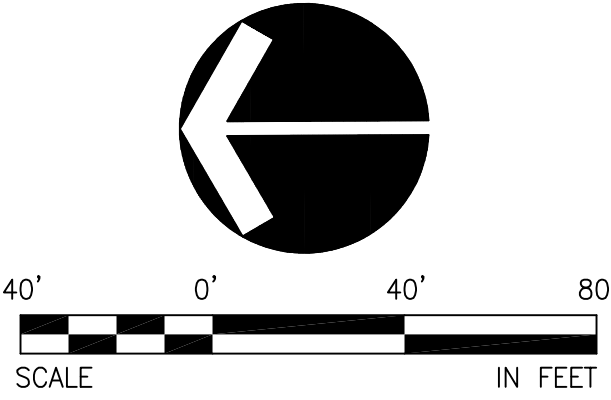
SYMBOL	QTY	COMMON NAME / Botanical name:	Size and description	Spacing
	38,458	HELLER'S HOLLY / ILEX CRENATA 'HELLER'	1 GAL.	5' o.c.
		SWORD FERN / POLYSTICHUM MUNIUM	1 GAL.	4' o.c.
		RED FLOWERING CURRANT / RIBES SANGUINEUM	1 GAL.	5' o.c.
		SPIRAEA / SPIRAEA THUNBERGII	1 GAL.	5'-6" o.c.
		OREGON GRAPE / MAHONIA AQUIFOLIUM	1 GAL.	3' o.c.
		DWARF BURNING BUSH / EUONYMUS ALATA 'COMPACTA'	1 GAL.	3'-6" o.c.
		BLUE MOPHEAD HYDRANGEA / HYDRANGEA MACROPHYLLUM	1 GAL.	4.5' o.c.
		SARCOCOCCA / SARCOCOCCA CONFUSA	1 GAL.	3' o.c.
		2 GAL., 3' O.C.		
		BIG BLUE LILY TURF / LIRIOPE MUSCARI	1 GAL.	3' o.c.
		DWARF FOTHERGILLA / FOTHERGILLA GARDENII	1 GAL.	3' o.c.
		CRIMSON PYGMY BARBERRY / BERBERIS THUNBERGII 'CRIMSON PYGMY':	1 GAL.	3' o.c.

GROUND COVER LIST

COMMON NAME / Botanical name,	Size,	Spacing
KINNIKINNICK / ARCTOSTAPHYLOS UVA-URSII	4" POT	18" o.c.
BEARBERRY COTONEASTER / COTONEASTER DAMMERI	1 GAL.	24" o.c.
SILVER DRAGON LILY TURF / LIRIOPE SPICATA 'SILVER DRAGON'	4" POT	18" o.c.
CREeping OREGON GRAPE / MAHONIA REPENS	4" POT	18" o.c.
PACHYSANDRA / PACHYSANDRA TERMINALIS	1 GAL.	24" o.c.

OTHER

SYMBOL	QTY	DESCRIPTION
	2,737 SF	STORM FACILITY TREATMENT AREA
	4,824 SF	STORM FACILITY SIDESLOPES
	20,388 SF	NATIVE PLANT SEED MIX
	4,356 SF	LAWN SEED: Diamond Green Turf Mixture (Extreme Low Maintenance Turf Mix) From Sunmark Seeds International 8lbs./1000 SF



- NOTES:
- ALL LANDSCAPE AREAS SHALL BE WATERED BY A FULLY AUTOMATIC UNDERGROUND IRRIGATION SYSTEM.
 - 42-INCH HEIGHT VINYL-COATED CHAIN LINK FENCE WILL BE INSTALLED AT TOP OF WALL WHERE WALL HEIGHT EXCEEDS 30 INCHES.
 - SEE SHEET L1.1 FOR TYPICAL PLANTING PLANS.
 - SEE SHEET L1.2 FOR PLANTING NOTES AND DETAILS.

LAND USE SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

TANNER DRIVE MIXED-USE DEVELOPMENT
WEST LINN, OREGON

PRELIMINARY LANDSCAPE PLAN

PRELIMINARY

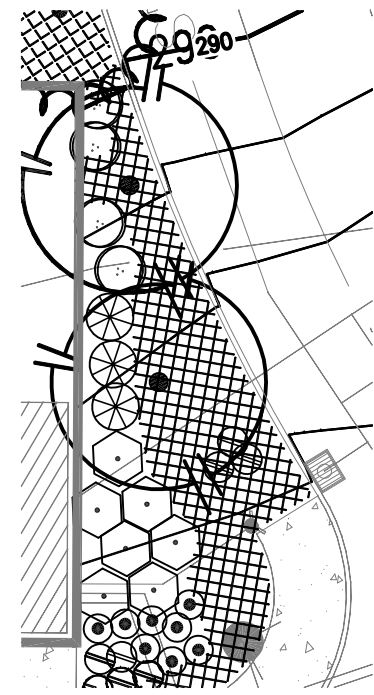
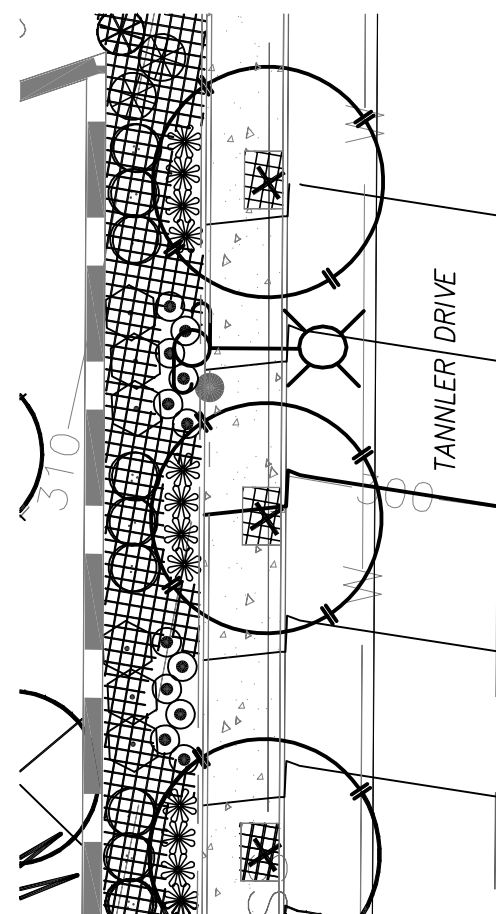
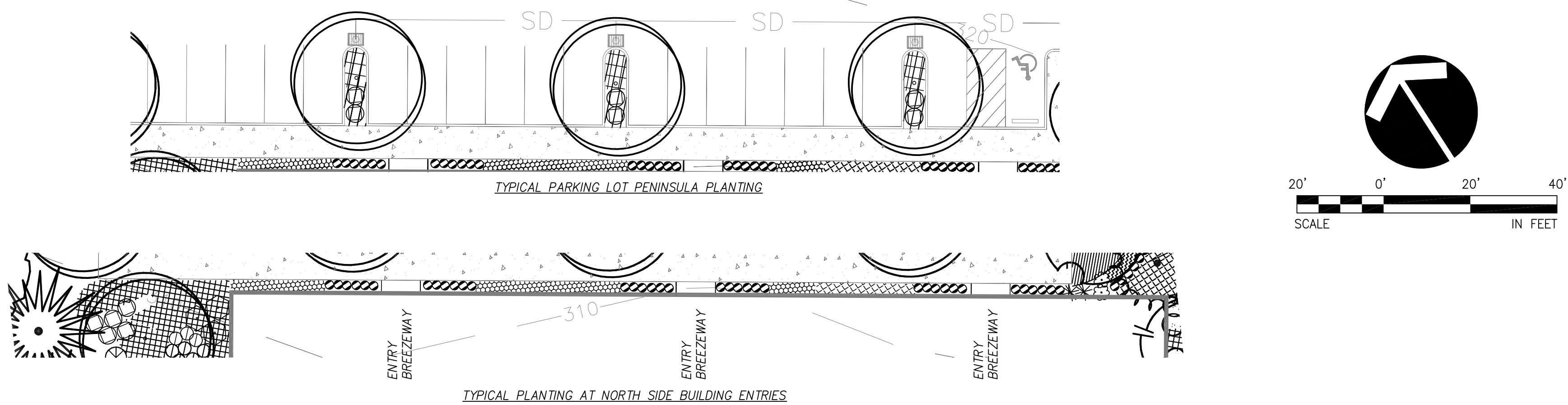
ConAm Properties, LLC
3990 RUFFIN ROAD, SUITE 100
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PHONE: (858) 614-7200
FAX: (858) 614-1848

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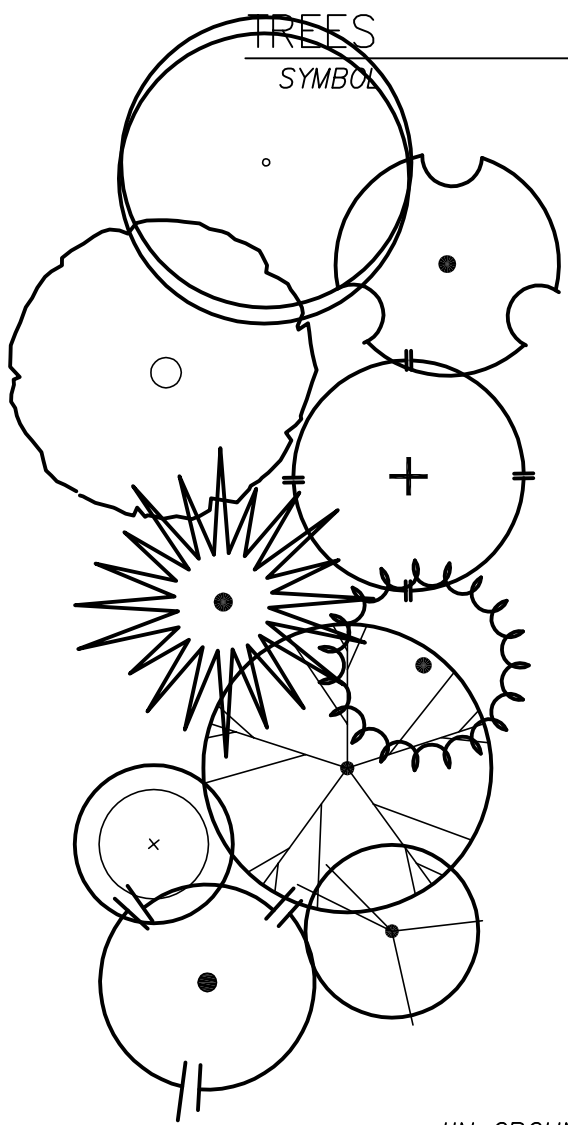
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L1.0
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Datum: NGVD 29















PLANTING LEGEND








COMMON NAME / Botanical name:	Size and Description
EASTERN REDBUD / CERCIS CANADENSIS:	1.75" CAL.
YELLOWWOOD / CLADRASTIS KENTUCKEA:	1.75" CAL.
BIG LEAF MAPLE / ACER MACROPHYLLUM:	1.75" CALIPER
JAPANESE ZELKOVA / ZELKOVA SERRATA:	1.75" CAL.
DOUGLAS FIR / PSEUDOTSUGA MENZIESII:	8'-10' HT.
GREEN ARROW ALASKA YELLOW CEDAR / CHAMAECYPARIS NOOKATENSIS 'GREEN ARROW':	8'-10' HT.
GRAND FIR / ABIES GRANDIS:	8'-10" MIN.HT., B&B*
LILY FLOWERED MAGNOLIA / MAGNOLIA LILLIFLORA 1.75" CALIPER, B&B*	
RED ALDER / ALNUS RUBRA:	1.75" CAL., B&B*
LITTLE LEAF LINDEN / TILIA CORDATA: 1.75" CAL., B&B*	

*IN GROUND FABRIC BAGS MAY BE SUBSTITUTED FOR B&B.
CONTRACTOR IS CAUTIONED TO PROVIDE MORE INITIAL WATER FOR
IN-GROUND FABRIC BAGS THAN IS NORMALLY PROVIDED FOR B&B.

SHRUBS AND GROUNDCOVER LIST

SYMBOL	COMMON NAME / Botanical name:	Size and description	Spacing
	HELLER'S HOLLY / ILEX CRENATA 'HELLERI'	1 GAL.	5' o.c.
	SWORD FERN / POLYSTICHUM MUNITUM	1 GAL.	4' o.c.
	RED FLOWERING CURRANT / RIBES SANGUINEUM	1 GAL.	5' o.c.
	SPIRAEA / SPIRAEA THUNBERGII	1 GAL.	5"-6" o.c.
	OREGON GRAPE / MAHONIA AQUIFOLIUM	1 GAL.	3' o.c.
	DWARF BURNING BUSH / EUONYMUS ALATA 'COMPACTA': 24" HT., 4' O.C.	1 GAL.	3'-6" o.c.
	BLUE MOPHEAD HYDRANGEA / HYDRANGEA MACROPHYLLUM	1 GAL.	4.5' o.c.
	SARCOCOCCA / SARCOCOCCA CONFUSA	1 GAL.	3' o.c.
	BIG BLUE LILY TURF / LIRIOPE MUSCARI	1 GAL.	3' o.c.
	DWARF FOTHERGILLA / FOTHERGILLA GARDENII	1 GAL.	3' o.c.
	CRIMSON PYGMY BARBERRY / BERBERIS THUNBERGII 'CRIMSON PYGMY':	1 GAL.	3' o.c.
	RED FOUNTAIN GRASS / PENNISETUM SETACEUM 'RUBRUM'	1 GAL.	3' o.c.

GROUND COVERS

	COMMON NAME / Botanical name, Size, Spacing		
	KINNIKINNICK / <i>Arctostaphylos uva-ursi</i>	4" POT	18" o.c.
	BEARBERRY COTONEASTER / <i>Cotoneaster dammeri</i>	1 GAL.	24" o.c.
	SILVER DRAGON LILY TURF / <i>Liriope spicata</i> 'Silver Dragon'	4" POT	18" o.c.
	CREEPING OREGON GRAPE / <i>Mahonia repens</i>	4" POT	18" o.c.
	PACHYSANDRA / <i>Pachysandra terminalis</i>	1 GAL.	24" o.c.

LAND USE SUBMITTAL 7/10/2015 – NOT FOR CONSTRUCTION

TANNLER DRIVE MIXED-USE DEVELOPMENT
WEST LINN, OREGON

TYPICAL PLANTING PLANS



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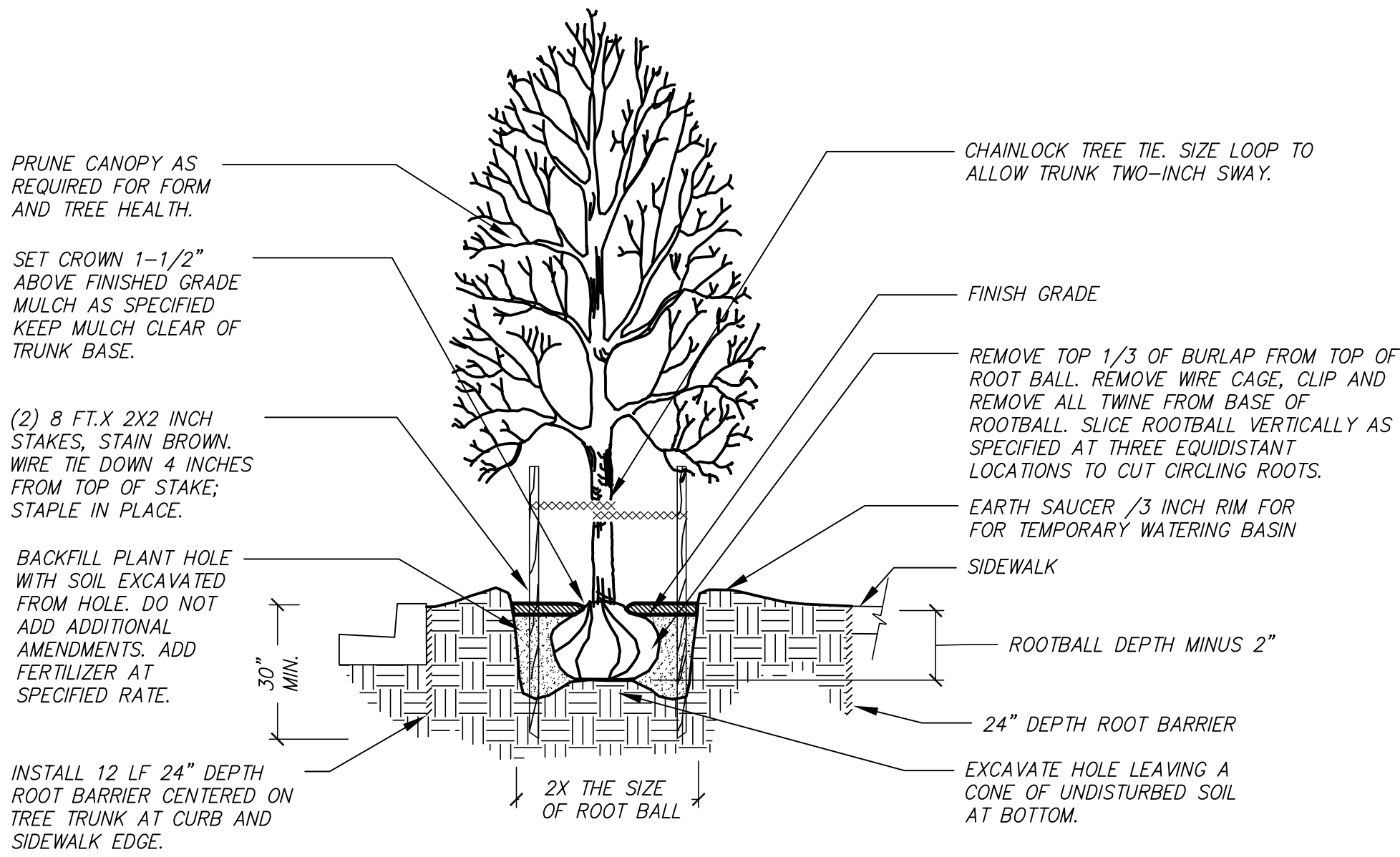
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Project No. Drawing No.

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NO.	DATE	BY	REVISION COMMENTS
(1)	7/20/15		COMPLETENESS REVIEW
(2)	8/04/15		REVISIONS PER TV&R COMMENTS

PRELIMINARY

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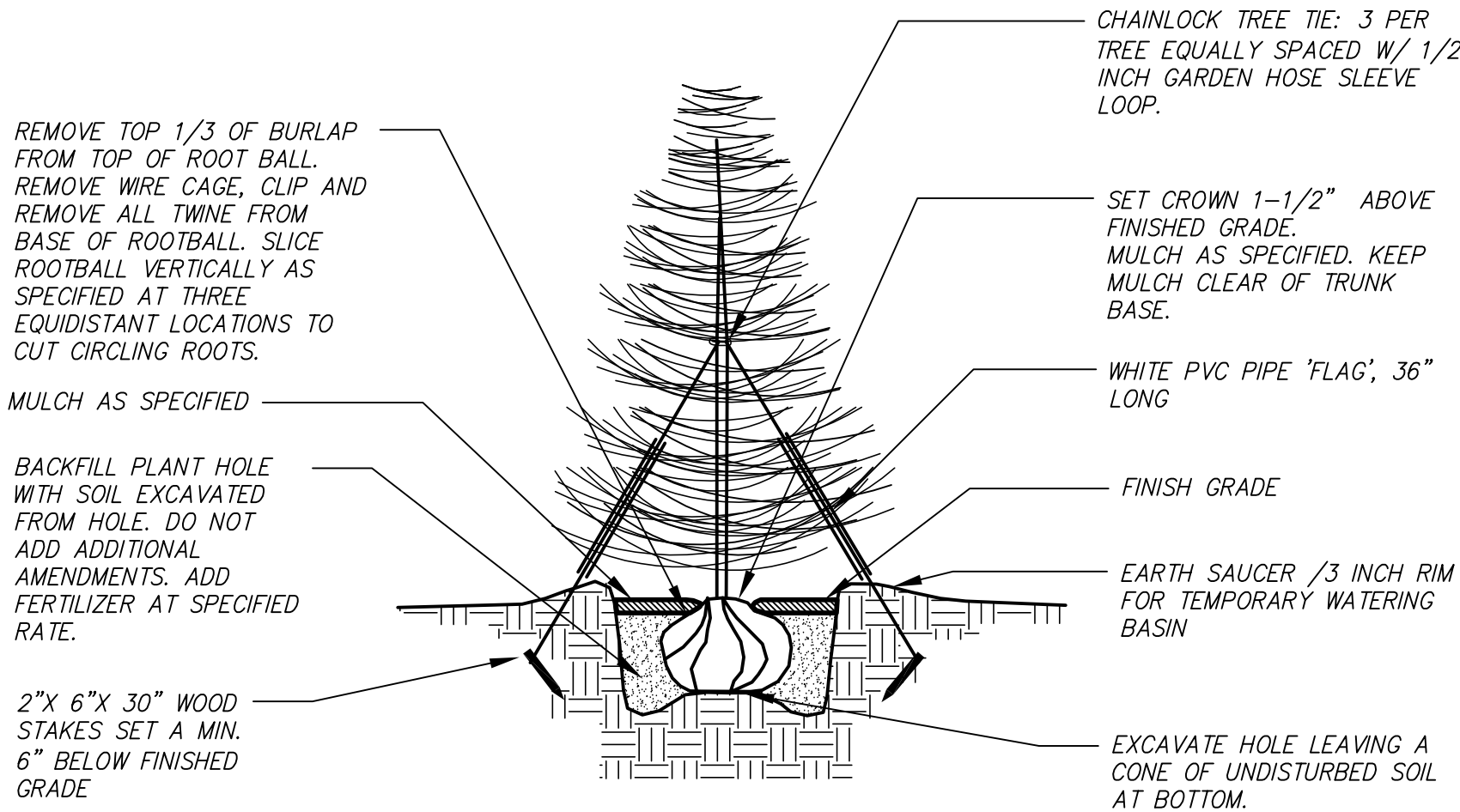


TREE PLANTING WITH ROOT BARRIER

SCALE: N.T.S.

8

L1.2

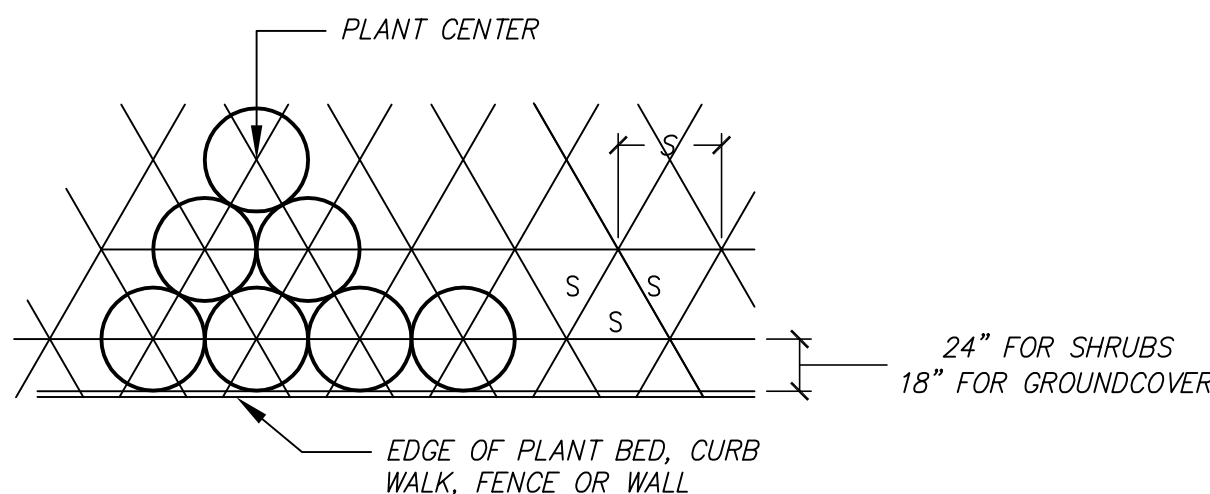


EVERGREEN TREE PLANTING

SCALE: N.T.S.

7

L1.2

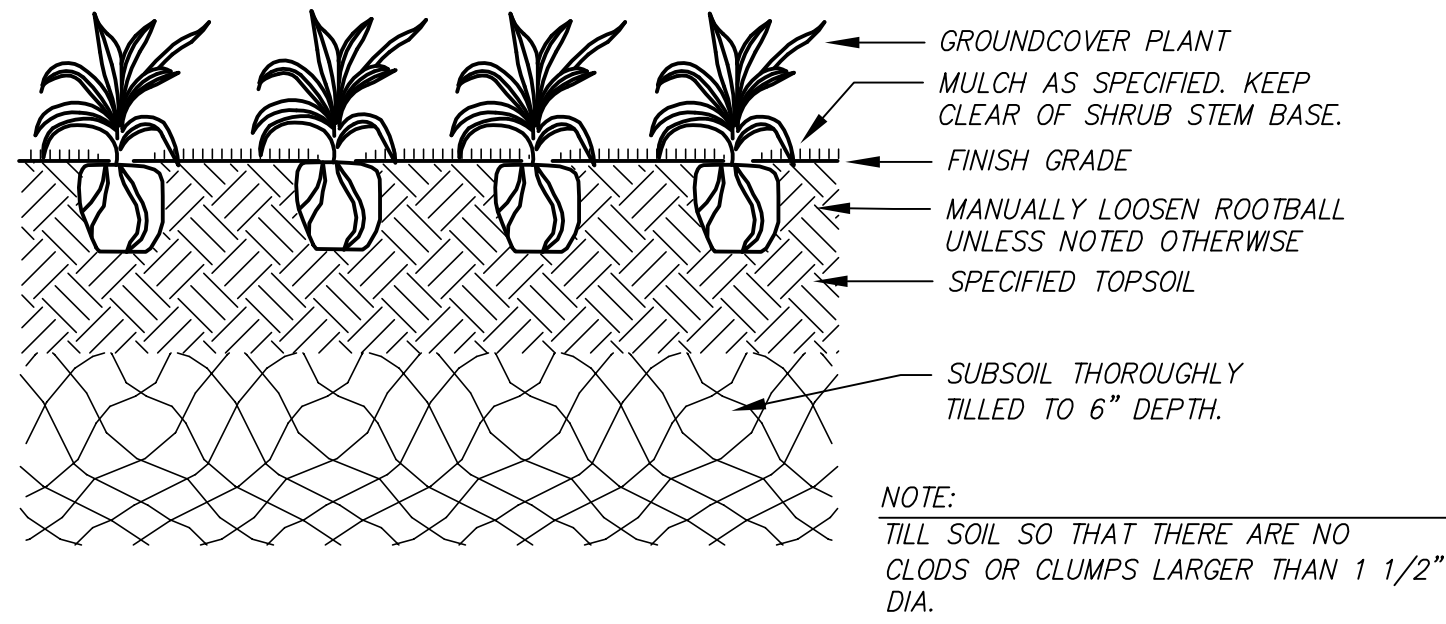


PLANT SPACING

SCALE: N.T.S.

6

L1.2

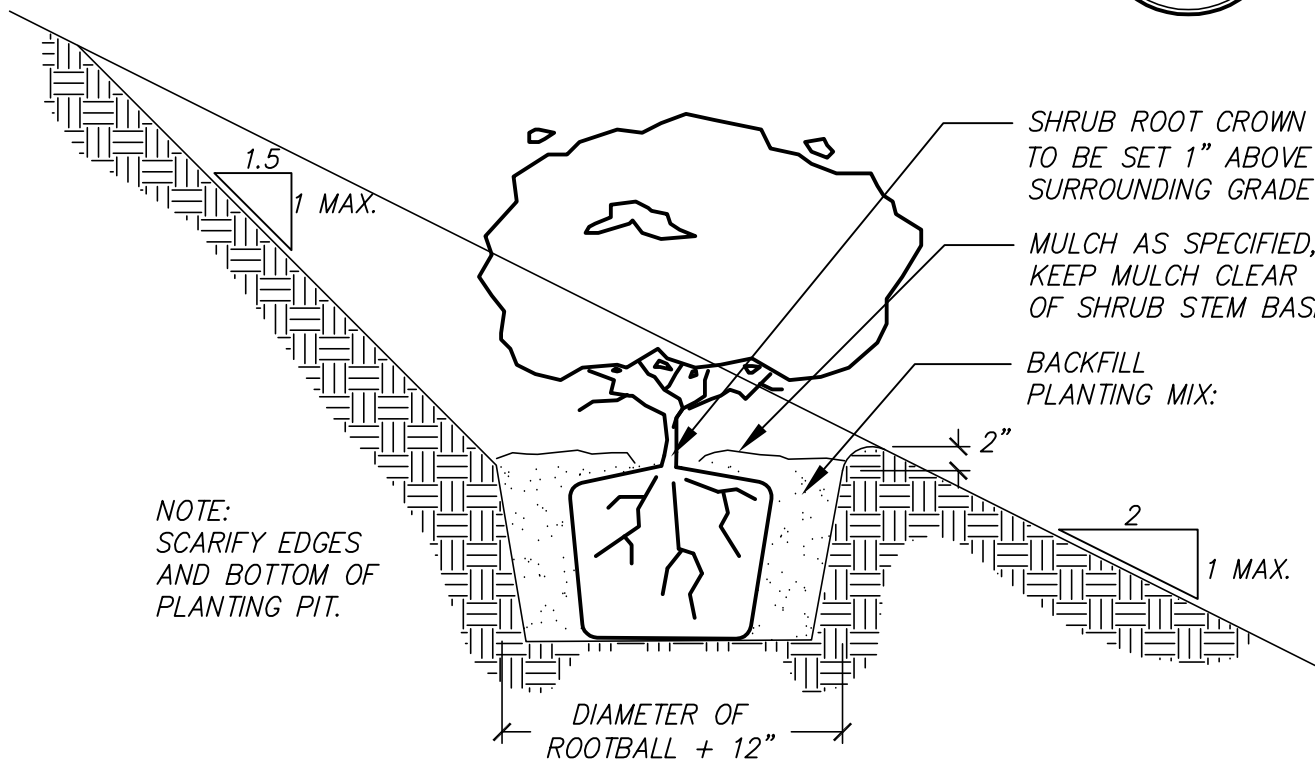


GROUNDCOVER PLANTING DETAIL

SCALE: N.T.S.

5

L1.2

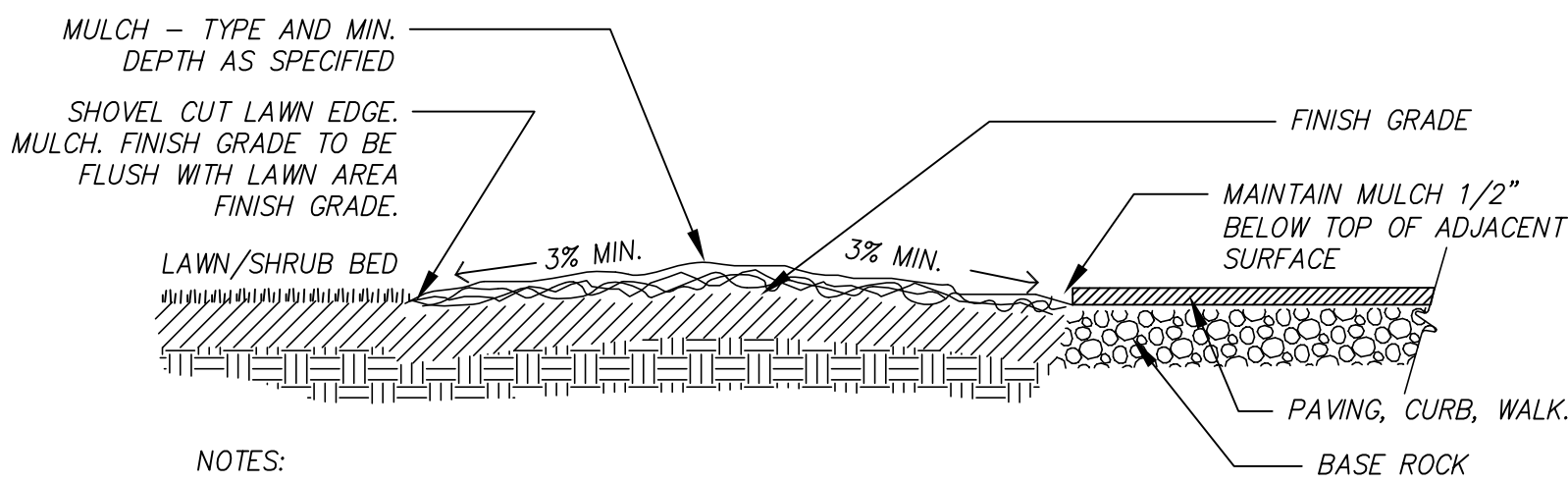


TREE/SHRUB PLANTING ON SLOPE

SCALE: N.T.S.

4

L1.2

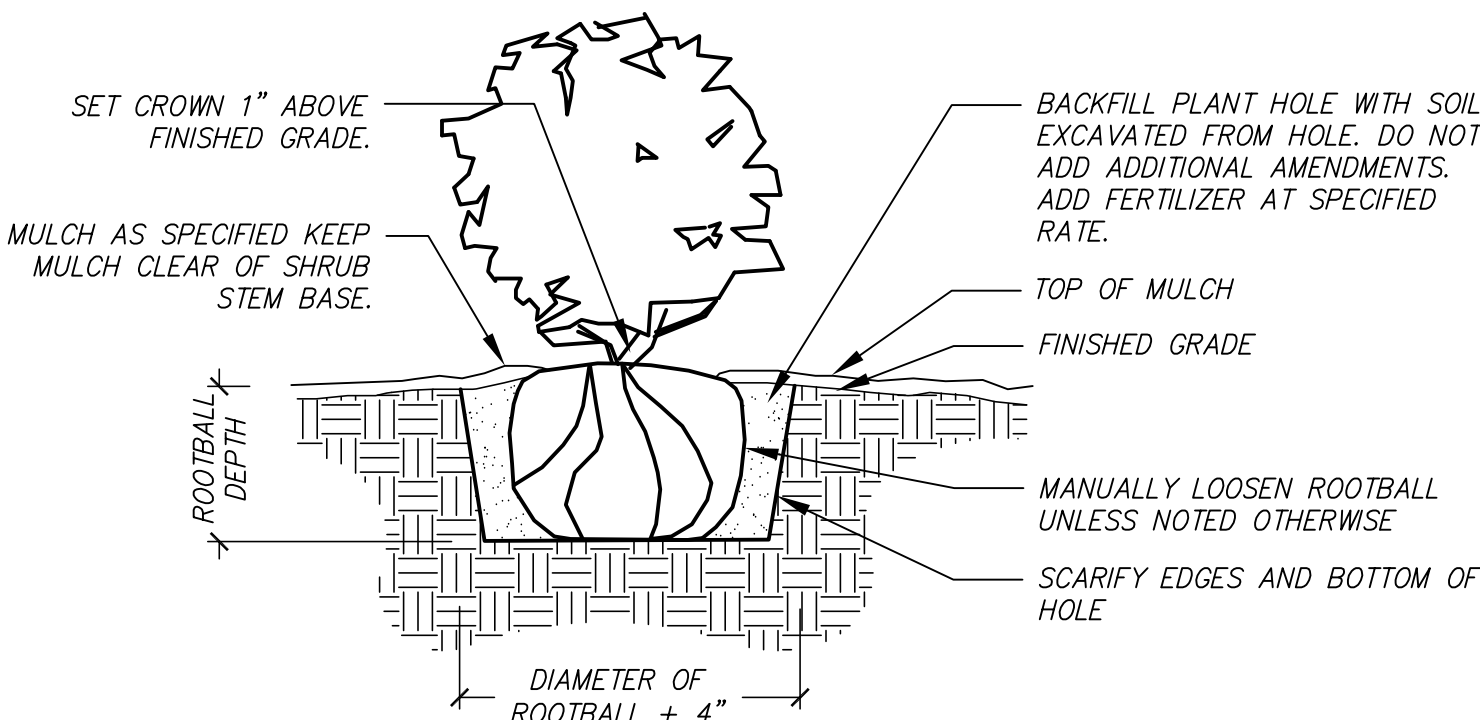


SECTION - PLANTING BED GRADING

SCALE: N.T.S.

3

L1.2

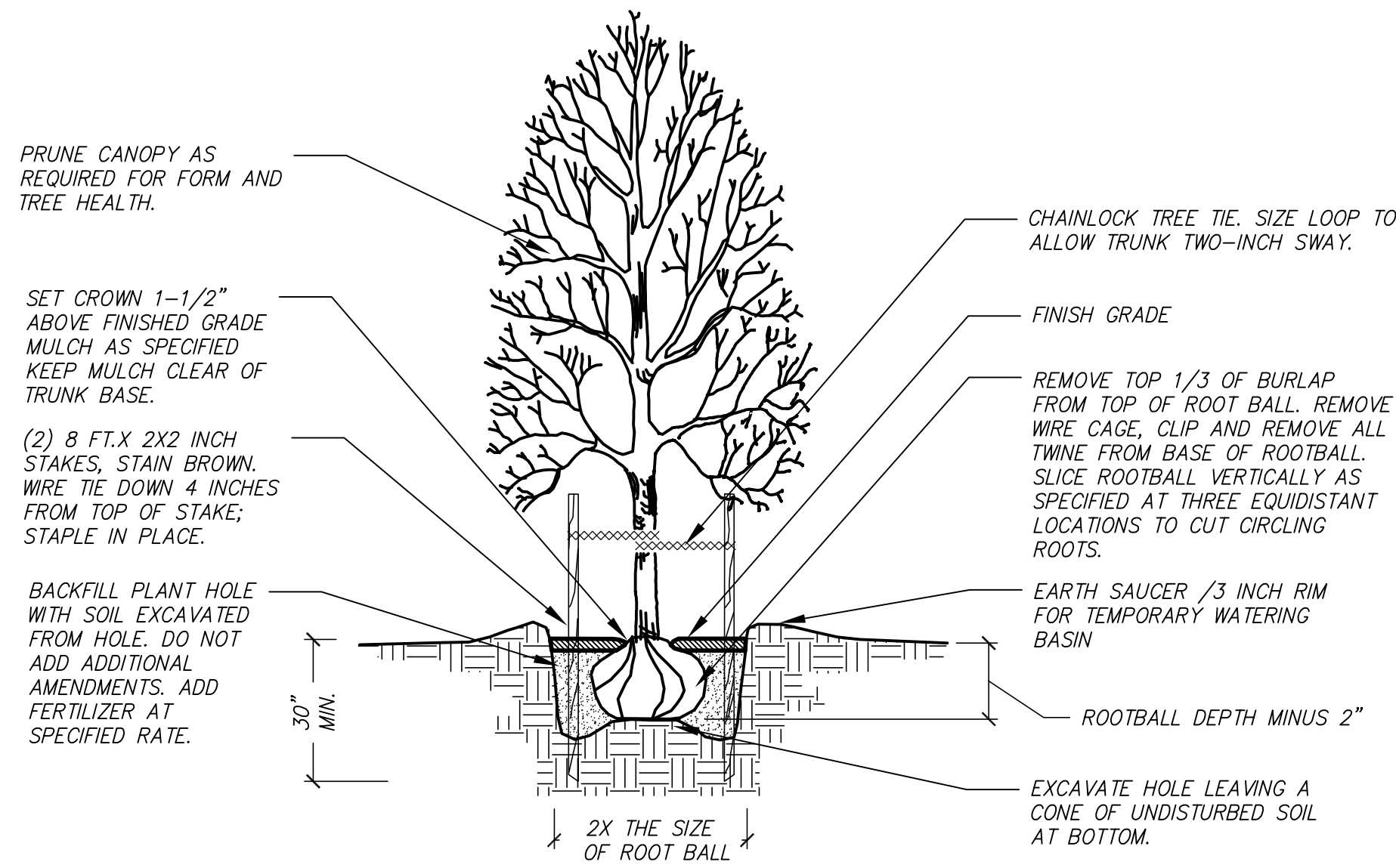


SHRUB PLANTING DETAIL

SCALE: N.T.S.

2

L1.2



TREE PLANTING DETAIL

SCALE: N.T.S.

1

L1.2

UTILITY NOTE:

CONTRACTOR IS CAUTIONED THAT EXISTING UNDERGROUND FACILITIES OCCUR THROUGHOUT THE WORK AREAS INCLUDING BUT NOT LIMITED TO POWER, GAS, TELEPHONE, WATER SUPPLY, AND IRRIGATION. CONTRACTOR SHALL MARK THE FACILITIES BEFORE WORK, POTHOLE WHERE NECESSARY, AND PROTECT DURING CONSTRUCTION. IMMEDIATELY NOTIFY OWNER'S REPRESENTATIVE IF ANY CONFLICTS ARE FOUND.

LANDSCAPE NOTES:

- GENERAL: SEVERAL OF THE FOLLOWING NOTES SUMMARIZE THE PROJECT SPECIFICATIONS FOR THE CONTRACTORS CONVENIENCE. IF A DISCREPANCY EXISTS BETWEEN THESE NOTES AND THE PROJECT SPECIFICATIONS THE SPECIFICATIONS SHALL OVERRIDE.
- THE LANDSCAPE CONTRACTOR IS TO THOROUGHLY REVIEW THE SITE. IF THERE ARE ANY DISCREPANCIES BETWEEN THE PLAN AND THE EXISTING CONDITIONS THE OWNERS REPRESENTATIVE IS TO BE NOTIFIED IMMEDIATELY.
- IF THE LANDSCAPE CONTRACTOR STARTS WORK BEFORE SITE CONDITIONS ARE READY OR CONTINUES WORK IN ADVERSE CONDITIONS WITHOUT PRIOR APPROVAL THEY WILL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS RELATING TO THE CONDITION.
- IMMEDIATELY NOTIFY OWNERS REPRESENTATIVE CONCERNING ANY CONDITION AT ANY TIME DURING CONSTRUCTION THAT IS DETRIMENTAL TO THE HEALTH AND VIGOROUS GROWTH OF THE SPECIFIED PLANT MATERIAL.
- PROVIDE QUANTITY OF PLANT MATERIAL INDICATED IN PLANT LIST OR THE QUANTITY REQUIRED TO COVER AREAS INDICATED AT SPECIFIED SPACING, WHICHEVER IS GREATER.
- IF AN AREA DIFFERS SIGNIFICANTLY IN SIZE FROM THAT SCALED ON DRAWING AND REQUIRES MORE OR LESS MATERIAL THE OWNERS REPRESENTATIVE IS TO BE INFORMED.
- TOPSOIL: 8" DEPTH IMPORT TOPSOIL SHALL BE PREPARED AND AMENDED IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS. DO NOT APPLY TOPSOIL AT STORM FACILITIES.
- SOIL ANALYSIS: CONTRACTOR SHALL OBTAIN A COPY OF OWNER-PROVIDED SOIL TEST AND AMEND AND FERTILIZE IN CONFORMANCE WITH RECOMMENDATIONS INDICATED IN THE REPORT.
- COMPOST: APPLY 4 INCH DEPTH SPECIFIED COMPOST OVER ALL PLANTING AREAS EXCEPT STORM FACILITIES. TILL IN TO IMPORT TOPSOIL TO A DEPTH OF 6 INCHES.
- FERTILIZER: APPLY FERTILIZER TO ALL PLANT HOLES AND TURF AREAS OF THE TYPE, QUANTITY, APPLICATION METHOD, AND TIMING NOTED IN THE SPECIFICATIONS. DO NOT APPLY FERTILIZER AT STORM FACILITIES.
- BARK MULCH: SPREAD 3 INCH DEPTH FINE-MEDIUM GRADE FIR/HEMLOCK BARK OVER ALL SHRUB BEDS EXCEPT AT STORM FACILITIES. KEEP BARK CLEAR OF TREE AND SHRUB STEM BASE.
- PLANTING POCKETS: BACK FILL PLANT HOLE WITH SOIL EXCAVATED FROM HOLE. DO NOT ADD ADDITIONAL AMENDMENTS.
- PLANT MATERIAL: ALL PLANT MATERIAL SHALL MEET MINIMUM QUALITY AND SIZE REQUIREMENTS ESTABLISHED IN THE AMERICAN STANDARD FOR NURSERY STOCK GUIDELINES.
- LEAVE PLANT NAME IDENTIFICATION TAGS ON TEN PERCENT OF ALL TREES AND SHRUBS INSTALLED TO AID INSPECTORS IN VERIFYING THAT SPECIFIED PLANTS HAVE BEEN INSTALLED.
- PLANT CENTER OF SHRUBS A MINIMUM OF 24 INCHES FROM ADJACENT PAVING. PLANT CENTER OF GROUND COVERS A MINIMUM OF 18 INCHES FROM ADJACENT PAVING.
- WHERE PLANT BED SLOPE IS LESS THAN 3% MOUND PLANTING BED AREAS 3% MINIMUM FOR POSITIVE DRAINAGE.
- SEE SPECIFICATIONS FOR FINAL INSPECTION, MAINTENANCE, AND WARRANTY REQUIREMENTS UNIQUE TO THIS PROJECT.
- SEE SPECIFICATIONS FOR OTHER LANDSCAPE CONSTRUCTION REQUIREMENTS.

LAND USE SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

TANNER DRIVE MIXED-USE DEVELOPMENT

WEST LINN, OREGON

PLANTING NOTES AND DETAILS

PRELIMINARY

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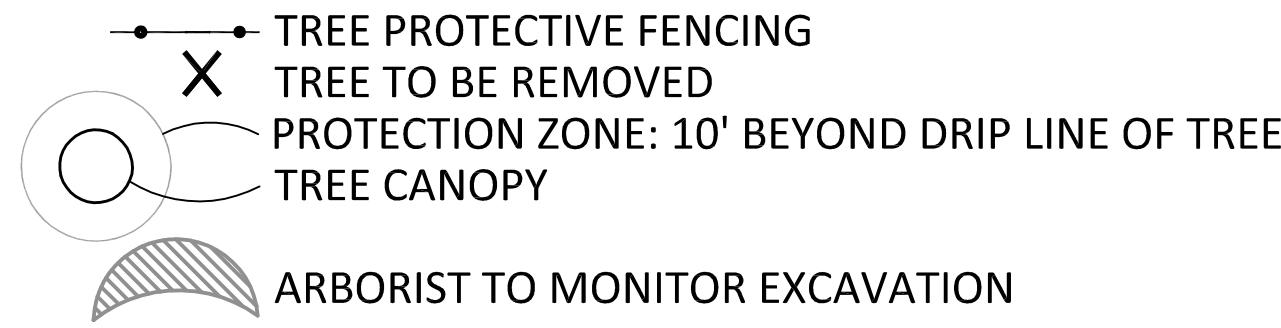
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NO.	DATE	BY	REVISION COMMENTS
1	7/20/15		COMPLETENESS REVIEW
2	8/04/15		REVISIONS PER TYP&R COMMENTS

Design	Drawn	Checked	Date	Initial	Issue	Date:
MAP	SLR	BS	05/02			

XREF LIST
Ltscale: 50
Resolved
P17122X230
016XTOPO
016-WEST SITE
17122X001

45302 S.F. AREA OF ALL SIGNIFICANT TREES
19808 S.F. AREA OF REMOVED SIGNIFICANT TREES
20 % TREE CANOPY REQ'D TO BE RETAINED
56 % TREE CANOPY RETAINED



NOTES:

1. THE CONTRACTOR IS REQUIRED TO MEET ON SITE WITH THE PROJECT ARBORIST TO DISCUSS REMOVAL AND TREE PROTECTION PRIOR TO ANY CONSTRUCTION.
2. THE LOCATION OF THE TREE PROTECTION ZONE IS 10 FEET BEYOND THE DRIPLINE OF THE SIGNIFICANT TREES AND AT THE DRIPLINE OF NON-SIGNIFICANT TREES AS SHOWN ON THE PLAN.
3. THE TREE PROTECTION FENCING SHOULD BE INSTALLED PRIOR TO DEMOLITION, GRUBBING, GRADING, OR CONSTRUCTION BEGINS.
4. TREE PROTECTION FENCING SHOULD BE 6" HIGH CHAIN LINK FENCING SECURED TO 2" DIAMETER GALVANIZED IRON POSTS, DRIVEN TO A DEPTH OF AT LEAST 2' AND NO FURTHER APART THAN 10'.
5. AN 8.5x11-INCH SIGN STATING, "WARNING: TREE PROTECTION ZONE," SHOULD BE DISPLAYED ON EACH PROTECTION FENCE AT ALL TIMES.
6. PRIOR TO START OF CONSTRUCTION, THE PROJECT ARBORIST SHALL VERIFY IN WRITING TO THE CITY ARBORIST THAT THE TREE PROTECTION FENCING HAS BEEN SATISFACTORILY INSTALLED.
7. THE TREE PROTECTION ZONE SHALL BE MAINTAINED THROUGHOUT THE PERIOD OF CONSTRUCTION UNLESS DIRECTED BY THE PROJECT ARBORIST, IN COORDINATION WITH THE CITY ARBORIST.

NOTES: (CONT.)

8. THE CONTRACTOR SHALL NOT STORE CONSTRUCTION MATERIALS OR EQUIPMENT WITHIN THE TREE PROTECTION ZONE.
9. EXCAVATION WITHIN THE TPZ WILL NOT BE ALLOWED EXCEPT UNDER THE GUIDANCE OF A QUALIFIED ARBORIST.
10. THE PROJECT ARBORIST SHALL SUPERVISE THE EXECUTION OF THIS PLAN DURING CONSTRUCTION ACTIVITIES THAT COULD IMPACT RETAINED TREES AND PROVIDE TREE PROTECTION REPORTS TO THE CLIENT AND CITY ON A REGULAR BASIS.
11. THE ARBORIST SHALL PROVIDE A FINAL REPORT TO THE DEVELOPER AND THE CITY. THE REPORT SHALL INCLUDE CONCERNS ABOUT ANY TREES NEGATIVELY IMPACTED DURING CONSTRUCTION AND DESCRIBE MEASURES NEEDED TO MAINTAIN AND PROTECT REMAINING TREES FOR A MINIMUM OF TWO YEARS AFTER PROJECT COMPLETION.

NOTE:
ARBORIST'S REPORT INCLUDED IN APPLICATION PACKET.

LAND USE SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

TANNER DRIVE MIXED-USE DEVELOPMENT
WEST LINN, OREGON

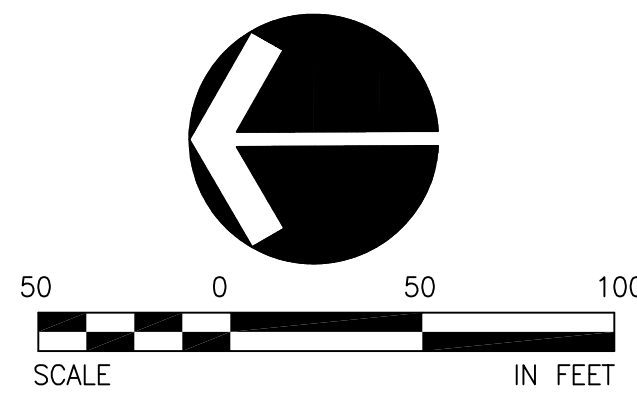
TREE REMOVAL AND PRESERVATION PLAN

PRELIMINARY

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Ltscale: 50
Resolved
P17122X230
016XTOPO
016-WEST SITE
17122X001
EXISTING

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No.	Common Name	Species Name	DBH"	C-Rad"	Cond"	Defects and Comments	Sig?	Treatment	
1	Norway maple	<i>Acer platanoides</i>	10	12	F	invasive species, some included bark, street tree	Off-site	protect	
1b	bigleaf maple	<i>Acer macrophyllum</i>	2x8	12	F	moderate structure	Off-site	protect	
2	pacific madrone	<i>Arbutus menziesii</i>	12	16	G	visual assessment inhibited by blackberries	Off-site	protect	
2b	pacific madrone	<i>Arbutus menziesii</i>	8	10	G	visual assessment inhibited by blackberries	Off-site	protect	
3	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	14	F	moderate structure	No	remove	
4	black cottonwood	<i>Populus trichocarpa</i>	15	22	F	inherent species limitations, old broken top with new leader, increased risk potential	No	remove	
4b	bigleaf maple	<i>Acer macrophyllum</i>	14	20	F	natural regen on slope above street	No	remove	
5	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	14	G	visual assessment inhibited by blackberries	No	remove	
6	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	16	G	visual assessment inhibited by blackberries	No	remove	
7	black cottonwood	<i>Populus trichocarpa</i>	20	20	F	inherent species limitations, moderate structure, trunk decay	No	remove	
8	Douglas-fir	<i>Pseudotsuga menziesii</i>	34	25	G	visual assessment inhibited by blackberries, few broken branches, long lateral limbs	Yes	retain	
9	Oregon white oak	<i>Quercus garryana</i>	10	14	G	visual assessment inhibited by blackberries	Yes	retain	
10	Oregon white oak	<i>Quercus garryana</i>	20	24	P	very poor structure, trunk decay	No	remove	
11	Oregon white oak	<i>Quercus garryana</i>	50	40	G	codominant stems with included bark and a prominent seam, high risk	No	remove	
12	pacific madrone	<i>Arbutus menziesii</i>	10	14	F	some branch dieback, moderate structure	No	remove	
13	Oregon white oak	<i>Quercus garryana</i>	20	20	P	very poor structure, trunk decay	No	remove	
14	Oregon white oak	<i>Quercus garryana</i>	22	24	G	no major defects, dead branches	Yes	retain	
15	Oregon white oak	<i>Quercus garryana</i>	10	10	G	no major defects, retain with group	Yes	retain	
15b	Oregon white oak	<i>Quercus garryana</i>	2x8	10	G	codominant stems, retain with group	Yes	retain	
15c	Oregon white oak	<i>Quercus garryana</i>	10	10	G	no major defects, retain with group	Yes	retain	
16	Oregon white oak	<i>Quercus garryana</i>	18	20	G	no major defects, moderate structure	Yes	retain	
16b	Oregon white oak	<i>Quercus garryana</i>	2x10	10	G	no major defects, codominant stems at ground level	Yes	retain	
17	Oregon white oak	<i>Quercus garryana</i>	6.8,3x12	16	F	moderate structure, retain with group	Yes	retain	
18	Oregon white oak	<i>Quercus garryana</i>	2x8	10	G	no major defects, codominant stems just above ground level	Yes	retain	
19	Oregon white oak	<i>Quercus garryana</i>	2x6,12	12	G	epicormic sprouts, codominant stems just above ground level	Yes	retain	
20	Oregon white oak	<i>Quercus garryana</i>	12	12	G	no major defects, few dead and broken branches	Yes	retain	
21	Oregon white oak	<i>Quercus garryana</i>	18	14	F	twig dieback, poor vigor, possible decline	No	retain	
22	Oregon white oak	<i>Quercus garryana</i>	24	18	G	no major defects	Yes	retain	
23	Oregon white oak	<i>Quercus garryana</i>	6.8	16	G	codominant stems at ground level	Yes	retain	
24	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	16	G	visual assessment inhibited by blackberry, few broken branches	Off-site	protect	
24b	Oregon white oak	<i>Quercus garryana</i>	10	14	G	visual assessment inhibited by blackberry	Off-site	protect	
24c	Oregon white oak	<i>Quercus garryana</i>	14	14	G	visual assessment inhibited by blackberry	Off-site	protect	
25	Oregon white oak	<i>Quercus garryana</i>	8,3x12	12	G	codominant stems at ground level, visual assessment limited to south side of tree	Off-site	protect	
26	Douglas-fir	<i>Pseudotsuga menziesii</i>	38	20	G	visual assessment limited to south side of tree	Yes	retain	
27	Oregon white oak	<i>Quercus garryana</i>	2x8	10	G	no major defects, codominant stems just above ground level	Yes	retain	
28	Oregon white oak	<i>Quercus garryana</i>	26	24	G	basal trunk wound on north face	Yes	retain	
29	Oregon white oak	<i>Quercus garryana</i>	2x8	10	F	codominant stems just above ground level, old trunk wounds on eastern stem	Yes	retain	
30	Oregon white oak	<i>Quercus garryana</i>	4x10	16	G	codominant stems at ground level, moderate structure, retain with group	Yes	retain	
31	Oregon white oak	<i>Quercus garryana</i>	10	12	G	few dead branches	Yes	retain	
32	Oregon white oak	<i>Quercus garryana</i>	11	4	P	broken top, advanced trunk decay with hollow 0-10', suppressed beneath crown of tree 33, high risk	No	remove	
33	Oregon white oak	<i>Quercus garryana</i>	24	26	G	no major defects	Yes	retain	
34	Oregon white oak	<i>Quercus garryana</i>	14	12	G	one-sided crown, old trunk wound on east face	Yes	retain	
35	Oregon white oak	<i>Quercus garryana</i>	10,14	14	G	codominant stems at ~2' above ground level, visual assessment limited to south side of tree	Yes	retain	
36	bigleaf maple	<i>Acer macrophyllum</i>	7x12	20	F	poor structure, advanced basal decay with hollow, high risk	No	remove	
37	Oregon white oak	<i>Quercus garryana</i>	30	18	F	advanced trunk decay with hollow, decay in plane of lean to south, dead and broken branches, crown decay, high risk	No	remove	
38	Oregon white oak	<i>Quercus garryana</i>	24	16	F	extensive ivy up trunk into crown, advanced basal and trunk decay with hollow, high risk	No	remove	
39	Oregon white oak	<i>Quercus garryana</i>	22	22	G	no major defects, barbed wire compartmentalized in trunk	Yes	remove	
40	Oregon white oak	<i>Quercus garryana</i>	7x6	12	G	codominant stems at ground level, moderate structure, retain with group	Yes	remove	
41	Oregon white oak	<i>Quercus garryana</i>	22	22	G	few dead branches, branch decay	Yes	remove	

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morgan.holen@comcast.net | 971.409.9354

<div><div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>Morgan Holen</div><div>ASSOCIATES, LLC</div></div></div><div>MHA1472 Tannler and Blankenship - Tree Data 4-28-15 Rev. 7-9-15.xlsx Page 2 of 3</div></div></div>									
No.	Common Name	Species Name	DBH"	C-Rad"	Cond"	Defects and Comments	Sig?	Treatment	
42	Oregon white oak	<i>Quercus garryana</i>	8,10	14	G	codominant stems ~1' above ground level	Yes	remove	
43	Oregon white oak	<i>Quercus garryana</i>	26	20	G	no major defects, barbed wire compartmentalized in trunk	Yes	remove	
44	Oregon white oak	<i>Quercus garryana</i>	2x16	18	F	codominant stems ~1' above ground level, dead branches, moderate vigor, old wounds on north side from trunk on north side and hazard potential	Yes	retain	
45	Oregon white oak	<i>Quercus garryana</i>	10	14	F	moderate structure, previous report notes roots cut 2'	Yes	retain	
46	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	20	F	a few small <i>Phellinus pini</i> conks	Yes	retain	
47	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	14	G	no major defects	Yes	remove	
48	Oregon white oak	<i>Quercus garryana</i>	28	28	F	moderate vigor	Yes	remove	
49	Douglas-fir	<i>Pseudotsuga menziesii</i>	34	20	G	codominant crown class, few dead branches, only suitable for retention in group with 49-52	Yes	remove	
50	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	20	G	codominant crown class, old basal wound on east face, only suitable for retention in group with 49-52	Yes	remove	
51	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	20	F	codominant crown class, old wound on west face, a few small <i>Phellinus pini</i> conks, dead and defective branches, only suitable for retention in group with 49-52	Yes	remove	
52	Douglas-fir	<i>Pseudotsuga menziesii</i>	22,36	20	F	codominant crown class, codominant stems ~1' above ground level, moderate crown structure, dead and defective branches, only suitable for retention in group with 49-52	Yes	remove	
53	Oregon white oak	<i>Quercus garryana</i>	2x18	16	F	codominant crown class, codominant stems at ~3' above ground level, some included bark with a small seam; trunk wound on west face, decay, retain with group	Off-site	protect	
53b	Oregon white oak	<i>Quercus garryana</i>	32	26	F	trunk decay 0-10', barbed wire compartmentalized in trunk	Off-site	protect	
53c	Austrian pine	<i>Pinus nigra</i>	12	9	P	dead top, suppressed beneath 53b	No	remove	
54	Austrian pine	<i>Pinus nigra</i>	14	11	G	moderate structure, sweep in lower trunk, wound on east face at 10'	No	remove	
54b	green ash	<i>Fraxinus pennsylvanica</i>	8	6	P	very poor crown structure, suppressed beneath 53b	No	remove	
54c	Austrian pine	<i>Pinus nigra</i>	10	10	G	forked top	No	remove	
55	London planetree	<i>Platanus x acerifolia</i>	12	14	G	no major defects	No	remove	
56	Austrian pine	<i>Pinus nigra</i>	14	14	F	moderate structure, forked tops	No	remove	
57	Austrian pine	<i>Pinus nigra</i>	8	12	F	moderate structure, forked tops	No	remove	
58	Austrian pine	<i>Pinus nigra</i>	10	12	F	moderate structure, forked tops	No	remove	
59	London planetree	<i>Platanus x acerifolia</i>	10	16	G	blackberry growing into lower crown	No	remove	
60	green ash	<i>Fraxinus pennsylvanica</i>	10	12	F	codominant stem failure, wound on east face	No	remove	
60b	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	10	G	crowded by adjacent trees	No	remove	
60c	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	10	G	blackberry growing into lower crown	No	remove	
61	London planetree	<i>Platanus x acerifolia</i>	14	16	G	no major defects	No	remove	
61b	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	6	F	poor structure, overcrowded by 61	No	remove	
62	London planetree	<i>Platanus x acerifolia</i>	12	14	G	some crown asymmetry	No	remove	
63	Austrian pine	<i>Pinus nigra</i>	6	8	G	some crown asymmetry	No	remove	
64	London planetree	<i>Platanus x acerifolia</i>	10	14	G	blackberry growing into lower crown	No	remove	
65	London planetree	<i>Platanus x acerifolia</i>	14	16	G	no major defects	No	remove	
66	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	8	F	poor crown structure, suppressed	No	remove	
67	London planetree	<i>Platanus x acerifolia</i>	12	20	G	no major defects	Off-site	protect	
68	scots pine	<i>Pinus sylvestica</i>	10	8	F	blackberry growing into lower crown, moderate structure	Off-site	protect	
69	London planetree	<i>Platanus x acerifolia</i>	12	16	G	no major defects	Off-site	protect	
70	scots pine	<i>Pinus sylvestica</i>	6	0	D	whole tree failure	Off-site	protect	
71	scots pine	<i>Pinus sylvestica</i>	8	8	F	visual assessment inhibited by blackberry, moderate structure	Off-site	protect	
72	Leyland cypress	<i>Cupressus x leylandii</i>	14	16	G	no major defects	Off-site	protect	
73	Leyland cypress	<i>Cupressus x leylandii</i>	14	16	G	no major defects	Off-site	protect	
74	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	14	G	no major defects, south edge of row on slope above street	Off-site	protect	
75	black cottonwood	<i>Populus trichocarpa</i>	14	12	G	inherent species limitations	Off-site	protect	
76	pacific madrone	<i>Arbutus menziesii</i>	10	8	F	phototropic lean to west	Off-site	protect	
77	black cottonwood	<i>Populus trichocarpa</i>	12	8	F	inherent species limitations	Off-site	protect	
78	Douglas-fir	<i>Pseudotsuga menziesii</i>	9	6	F	crowded in dense row on steep slope above street	Off-site	protect	
79	black cottonwood	<i>Populus trichocarpa</i>	16,22	18	F	inherent species limitations, codominant stems with included bark	Off-site	protect	

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Morgan Holen
ASSOCIATES, LLC

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Page 3 of 3

No.	Common Name	Species Name	DBH"	C-Rad"	Cond"	Defects and Comments	Sig?	Treatment
80	black cottonwood	<i>Populus trichocarpa</i>	2x20	16	F	inherent species limitations, codominant stems with included bark, trunk decay	Off-site	protect
81	Douglas-fir	<i>Pseudotsuga menziesii</i>	6	6	P	suppressed	Off-site	protect
82	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	G	crowded in dense row on steep slope above street	Off-site	protect
83	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	F	crowded in dense row on steep slope above street	Off-site	protect
84	Douglas-fir	<i>Pseudotsuga menziesii</i>	11	10	P	suppressed	Off-site	protect
85	black cottonwood	<i>Populus trichocarpa</i>	3x16	14	F	inherent species limitations, poor structure	Off-site	protect
86	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	F	crowded in dense row on steep slope above street	Off-site	protect
87	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	8	F	crowded in dense row on steep slope above street, crown asymmetry	Off-site	protect
88	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	8	P	suppressed	Off-site	protect
89	Douglas-fir	<i>Pseudotsuga menziesii</i>	7	8	P	suppressed	Off-site	protect
90	pacific madrone	<i>Arbutus menziesii</i>	10,16	14	F	crowded in dense row on steep slope above street, crown asymmetry	Off-site	protect
91	black cottonwood	<i>Populus trichocarpa</i>	13	12	G	inherent species limitations	Off-site	protect
92	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	10	F	crowded in dense row on steep slope above street, crown asymmetry	Off-site	protect
93	black cottonwood	<i>Populus trichocarpa</i>	17	12	G	inherent species limitations	No	remove
94	black cottonwood	<i>Populus trichocarpa</i>	12	10	G	inherent species limitations	No	remove
95	black cottonwood	<i>Populus trichocarpa</i>	10	10	F	inherent species limitations, poor structure	No	remove
96	Douglas-fir	<i>Pseudotsuga menziesii</i>	9	8	P	suppressed	No	remove
97	black cottonwood	<i>Populus trichocarpa</i>	14	12	F	inherent species limitations, high live crown	No	remove
98	bigleaf maple	<i>Acer macrophyllum</i>	12	10	F	crowded in dense row on steep slope above street, crown asymmetry	No	remove
99	bigleaf maple	<i>Acer macrophyllum</i>	10	10	F	crowded in dense row on steep slope above street, one-sided crown	No	remove
100	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	8	F	crowded in dense row on steep slope above street	No	remove
101	black cottonwood	<i>Populus trichocarpa</i>	24	14	G	inherent species limitations	No	remove
102	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	6	F	crowded in dense row on steep slope above street	No	remove
103	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	6	F	crowded in dense row on steep slope above street, crown asymmetry	No	remove
104	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	6	F	suppressed	No	remove
105	black cottonwood	<i>Populus trichocarpa</i>	12	10	F	inherent species limitations, poor structure, old broken top with new leader, trunk wound on east face	No	remove
106	black cottonwood	<i>Populus trichocarpa</i>	17	12	G	inherent species limitations, basal wound on east face	No	remove
107	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	6	P	suppressed	No	remove
108	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	6	P	suppressed	No	remove
109	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	G	crowded in dense row on steep slope above street, crown asymmetry	No	remove
110	black cottonwood	<i>Populus trichocarpa</i>	14	12	F	inherent species limitations	No	remove
111	black cottonwood	<i>Populus trichocarpa</i>	14	12	F	inherent species limitations	No	remove
112	black cottonwood	<i>Populus trichocarpa</i>	10	12	F	inherent species limitations	No	remove
113	bigleaf maple	<i>Acer macrophyllum</i>	10	12	F	inherent species limitations	No	remove
114	black cottonwood	<i>Populus trichocarpa</i>	2x16	16	F	inherent species limitations, moderate structure	No	remove
115	bigleaf maple	<i>Acer macrophyllum</i>	2x10	14	F	crowded in dense row on steep slope above street, moderate structure	No	remove
116	black cottonwood	<i>Populus trichocarpa</i>	16	16	F	inherent species limitations, moderate structure	No	remove
117	black cottonwood	<i>Populus trichocarpa</i>	16	14	F	inherent species limitations, moderate structure	No	remove
118	Douglas-fir	<i>Pseudotsuga menziesii</i>	9	6	P	suppressed	No	remove
119	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	8	P	suppressed	No	remove
120	black cottonwood	<i>Populus trichocarpa</i>	2x14	14	F	inherent species limitations, poor structure	No	remove
120b	bigleaf maple	<i>Acer macrophyllum</i>	16	10	F	poor structure	No	remove
121	black cottonwood	<i>Populus trichocarpa</i>	18	12	G	inherent species limitations	No	remove
121b	bigleaf maple	<i>Acer macrophyllum</i>	7	8	F	crowded in dense row on steep slope above street, poor structure	No	remove
121c	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	10	G	crowded in dense row on steep slope above street, moderate structure	No	remove
122	black cottonwood	<i>Populus trichocarpa</i>	17	12	G	inherent species limitations	No	remove
123	bigleaf maple	<i>Acer macrophyllum</i>	10	12	F	multiple attachments with included bark	No	remove



SCALE: 1" = 20'-0"



SCALE: 1" = 20'-0"

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WEST LINN MIXED USE DEVELOPMENT
WEST LINN, OREGON

SITE SECTIONS



A1.1

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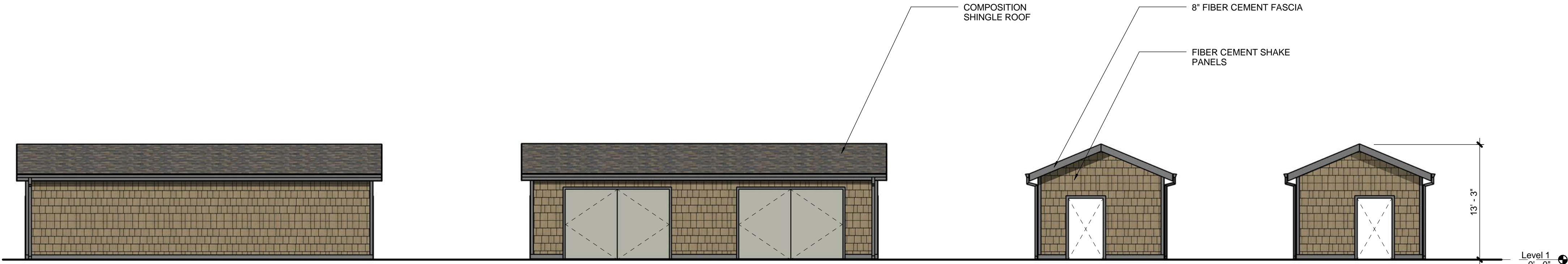
LAND USE SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

WEST LINN MIXED USE DEVELOPMENT
WEST LINN, OREGON

CLUBHOUSE ELEVATIONS

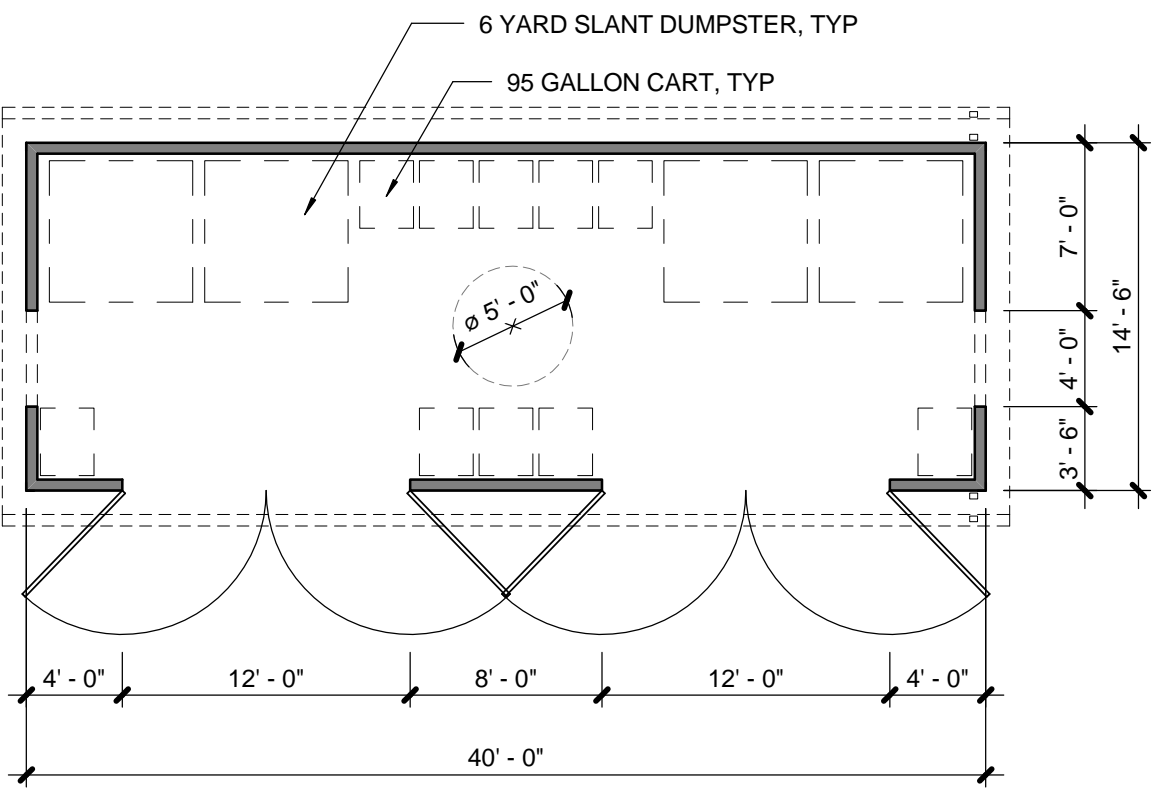


17122
Project No. Drawing No.
A3.0A
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DOUBLE TRASH ENCLOSURE ELEVATIONS (SINGLE TRASH ENCLOSURE SIMILAR)

SCALE: 1/8" = 1'-0"



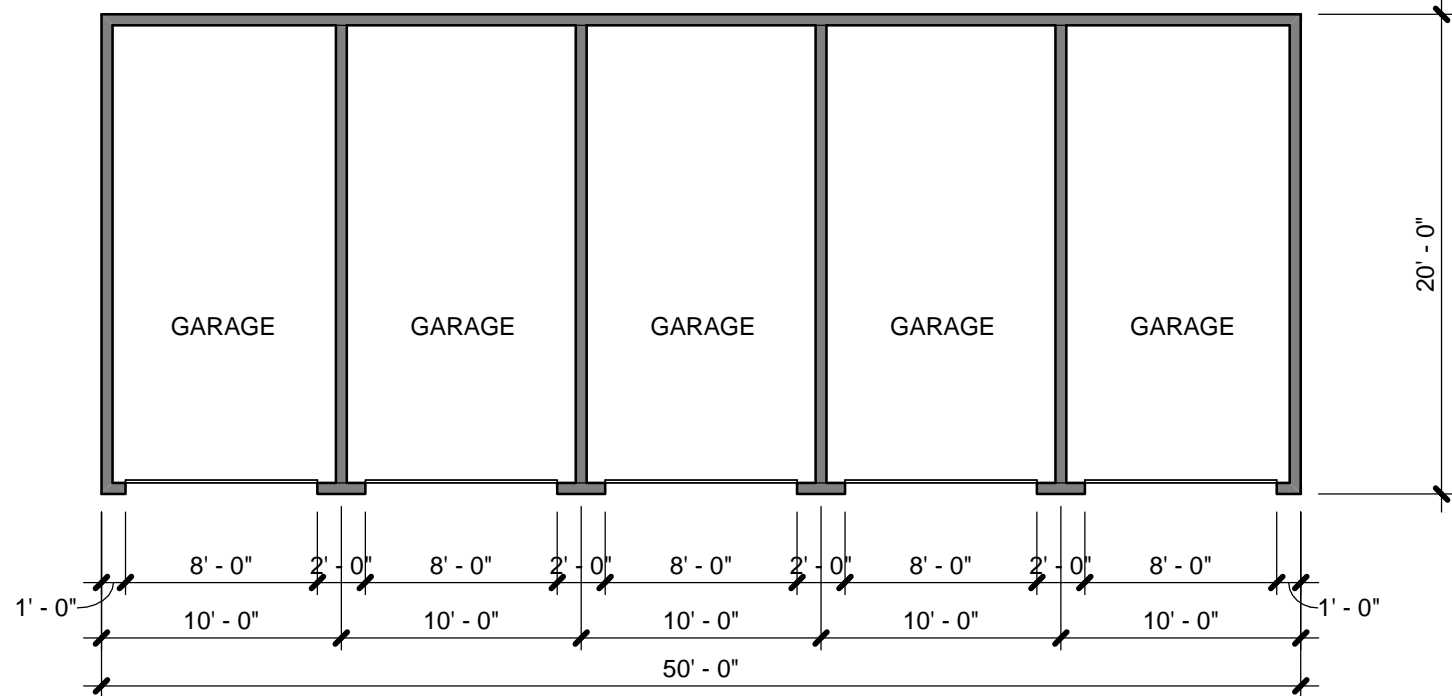
DOUBLE TRASH ENCLOSURE PLAN

SCALE: 1/8" = 1'-0"



GARAGE ELEVATIONS (8 BAY GARAGE SIMILAR)

SCALE: 1/8" = 1'-0"



GARAGE PLAN

SCALE: 1/8" = 1'-0"

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WEST LINN MIXED USE DEVELOPMENT
WEST LINN, OREGON

TRASH ENCLOSURES AND GARAGES

otak
HanmiGlobal Partner
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Portland, OR 97204
Phone: (503) 387-6855
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WEST LINN MIXED USE DEVELOPMENT
WEST LINN, OREGON

BUILDING TYPE 1 ELEVATIONS



A3.1A

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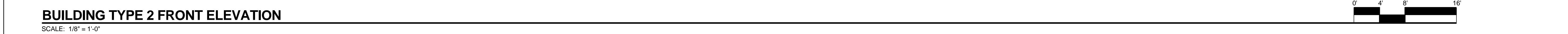
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WEST LINN, OREGON

BUILDING TYPE 1 ELEVATIONS



A3.1B

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		NO.	DATE	BY	REVISION COMMENTS				
		①	7/20/15		COMPLETENESS REVIEW				
		②	8/04/15		REVISIONS PER TIFAR COMMENTS				
		Design	Drawn	2-checker	Date	Initial Issue Date:			

LAND USE SUBMITTAL 7/10/2015 – NOT FOR CONSTRUCTION

WEST LINN MIXED USE DEVELOPMENT
WEST LINN, OREGON

BUILDING TYPE 2 ELEVATIONS



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17122
Project No. Drawing No.

A3.2A

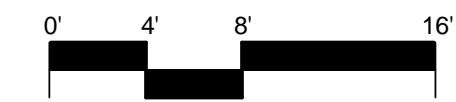
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BUILDING TYPE 4 FRONT ELEVATION

SCALE: 1/8" = 1'-0"



BUILDING TYPE 4 LEFT ELEVATION

SCALE: 1/8" = 1'-0"



LAND USE SUBMITTAL 7/10/2015 – NOT FOR CONSTRUCTION

WEST LINN MIXED USE DEVELOPMENT

WEST LINN, OREGON

BUILDING TYPE 4 ELEVATIONS



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17122	
Project No.	Drawing No.

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NO.	DATE	BY	REVISION COMMENTS
①	7/20/13		COMPLETENESS REVIEW
②	8/04/13		REVISIONS PER IVAR COMMENTS
Design:	Drawn:	Checked:	Date: Initial Issue Date:

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SAN DIEGO, CA 92123
PHONE: (858) 614-7200
FAX: (858) 614-1646



SCALE: 1/8" = 1'-0"



SCALE: 1/8" = 1'-0"

[illegible]

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LAND USE SUBMITTAL 7/10/2015 - NOT FOR CONSTRUCTION

WEST LINN MIXED USE DEVELOPMENT
WEST LINN, OREGON

BUILDING TYPE 5 ELEVATIONS



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BUILDING TYPE 7 LEFT ELEVATION



WEST LINN MIXED USE DEVELOPMENT
WEST LINN, OREGON

BUILDING TYPE 7 ELEVATIONS



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17122
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A3.7A

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NO.	DATE	BY	REVISION COMMENTS
1	7/29/15		COMPLETENESS REVIEW
2	8/04/15		REVISIONS PER INVAR COMMENTS
Design	Drawn	Checked	Date
			Initial Issue Date:

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PHONE: (858) 614-7200
FAX: (858) 614-1646

BLDG 1	101-308
BLDG 2	101-312
BLDG 3	101-312
BLDG 4	101-310
BLDG 5	101-304
BLDG 6	101-308
BLDG 7	101-308

A	Tenant
B	Tenant
C	Tenant
D	Tenant
E	Tenant
F	Tenant
G	Tenant



Site Entry Wayfinding Sign - Detail



onAm Properties, LLC
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BUILDING SIGNAGE
Unnamed



17122
Project No. Drawing No.
A4.1
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July 20, 2015

City of West Linn
Attention: Zach Pelz
22500 Salamo Road
West Linn, OR 97068

Re: **Tannler Mixed-Use Project**
Transportation Impact Analysis Update
Project Number 2130529.05

Dear Mr. Pelz:

This updated Transportation Impact Analysis (TIA) is provided based on comments provided by City staff and transportation consultant DKS Associates during the completeness review. This updated TIA supersedes the originally submitted TIA, dated July 10, 2015. In addition to the completeness items noted by the City, we have also addressed a number of other items that are not completeness items, but suggested by the City for inclusion. Copies of the City's completeness review documents are attached for reference.

Sincerely,



Brent Ahrend
Senior Associate | Traffic Engineer

Enclosures: July 16, 2015 City Completeness Letter, July 17, 2015 DKS TIA Completeness Review



City of West Linn

July 16, 2015

Mr. Rob Morgan
3990 Ruffin Rd., Suite 100
San Diego, CA 92123

RE: Completeness Determination for Planning File No. DR-15-11/LLA-15-01 (Application for proposed mixed-use development at the northwest corner of Tannler Drive and Blankenship Road).

Dear Mr. Morgan,

You submitted this application on **July 13, 2015**. The Planning Department finds that this application is incomplete. The following items must be addressed:

1. 55.070(C)

- a. 99.038(E)(4) - A copy of the minutes of the meetings, produced by the neighborhood association, or the applicant if the NA did not produce minutes.

2. 55.070(D)(2)(a-i)

- a. Site Analysis per CDC 55.110
 - i. 55.110(B)(6)(d) - Site analysis must include areas shown on Map 17 as areas vulnerable to landslide.
- b. Site Plan per CDC 55.120
 - i. 55.120(E) - site plan must show easements on site and on adjacent properties.
 - ii. 55.120(F)(2) - the site plan must show the location, dimensions and setback distances of all existing structures and driveways on adjoining properties.
- e. Landscape Plan per CDC 55.150
 - i. 55.150(B)(1) - the landscape plan does not detail the proposed erosion control measures.
- g. Please include a graphic or drawing to depict the various luminaires proposed throughout the site.

- 3. **46.030(H)** - requires that the plan show specifications for parking area signage and bumper guards.

4. Traffic Impact Analysis -

- a. Proposed mitigations for Blankenship Rd/Tannler Dr do not adequately address the project traffic impacts shown. Applicant should further evaluate potential mitigation strategies (right-in, right out, signalization, realignment, etc.) for this intersection and include strategies to maintain pre-development operating conditions (or better).
- b. Compatibility with long-range transportation system plan improvements for Tannler Drive needs to be addressed. This development would preclude the preferred Tannler Drive realignment alternative from the 2008 City of West Linn Transportation System Plan.
- c. Additional traffic from the proposed project does indeed contribute to the operational issues at 10th Street/8th Avenue, including increased vehicle queuing. Update discussion of this in the TIA and provide ideas for how this project could mitigate its impacts to this intersection.

5. Other Engineering-related details required

- a. Please show the access to the stormwater detention pond.
- b. Please show the proposed street lighting on the site plan.
- c. Please show the proposed stormwater treatment/detention facility that will capture runoff from a new sidewalk along the west side of Tannler Dr.
- d. Please correct conflicting information regarding right-of-way dedication along Tannler Dr.: two-feet is proposed on page 29 of the submittal but a 1-foot dedication is shown on the site plan (P2.1).
- e. Please show an 8-foot public utility easement along Tannler Drive.
- f. Please correct conflicting information regarding the width of parking and travel lanes along Tannler Dr.: page 29 of the submittal mentions an 11-foot parking lane and 13-foot travel lane; however, an 8-foot parking lane and 14-foot travel lane are shown on the site plan (page P1.1) and a 9-foot parking lane and 13-foot travel lane are shown on page P2.1.
- g. The 26-foot wide proposed driveway approach on Tannler Dr (including the standard 6-foot) wings will exceed the maximum approach width of 36-feet.
- h. Please show the water meter in a public easement or in the public right-of-way.
- i. Please show a manhole at the connection of the sanitary sewer.
- j. Please show the proposed pavement improvements along Tannler Dr.
- k. Please correct the striping plan on Tannler Dr. to terminate the on-street parking at an appropriate distance from the proposed left turn lane.
- l. Please show the mitigation plan at 10th and Blankenship (Figure 10, page 42 of the Traffic Impact Analysis) on the site plan set.

* Pursuant to CDC 99.035, the Planning Director may require information in addition to that required by a specific chapter in the Community Development Code or may waive a specific requirement for information or a requirement to address a certain approval standards.

Pursuant to ORS 227.178 "If an application for a permit, limited land use decision or zone change is incomplete, the governing body or its designee shall notify the applicant in writing of exactly what information is missing within 30 days of receipt of the application and allow the applicant to submit the missing information. The application shall be deemed complete for the purpose of subsection (1) of this section upon receipt by the governing body or its designee of:

- (a) All of the missing information;
- (b) Some of the missing information and written notice from the applicant that no other information will be provided; or
- (c) Written notice from the applicant that none of the missing information will be provided.

You now have 180 days, through January 11, 2016, to make the application complete by providing the information outlined above. On the 181st day after first being submitted, the application will be considered void if the applicant has been notified of the missing information and has not submitted the information as requested above or a written notice responding to the above options.

Please contact me at 503-723-2542, or by email at zpelz@westlinnoregon.gov if you have any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to be 'Zach Pelz', with a stylized, cursive script.

Zach Pelz, AICP

Associate Planner



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MEMORANDUM

DATE: July 17, 2015

TO: Khoi Le, City of West Linn

FROM: Brian Copeland, P.E.
Adam Miles, P.E.

SUBJECT: West Linn Tannler Mixed-Use Project TIA Completeness Review (Update)

P#15127-000

This memorandum summarizes the completeness review of the transportation impact analysis (TIA) materials¹ submitted for the Tannler Mixed-Use Project. The project site is located 2444 Tannler Drive, northwest of the 10th Street/I-205 interchange. The proposed use is a 210 dwelling unit apartment complex with 3,500 square feet of commercial space. This review focused on identifying if the submittal contained adequate information to be deemed complete. Based on our review of the materials, the TIA is not complete and will require additional clarification and materials before a complete technical review can be performed:

- Proposed mitigations for Blankenship Rd/Tannler Dr do not adequately address the project traffic impacts shown. Applicant should further evaluate potential mitigation strategies (right-in, right out at Tannler Dr with signalization of site access across from Haggen site, Tannler Dr. realignment, etc.) for this intersection and include strategies to maintain pre-development operating conditions (or better). These would include alternatives identified in Table 4 of Appendix I of the adopted 2008 TSP. Also, what impacts would these strategies create elsewhere (e.g. right-in/right-out at Tannler Dr/Blankenship Rd)?
- Compatibility with long-range transportation system plan improvements for Tannler Drive needs to be addressed. This development would preclude the preferred Tannler Drive realignment alternative from the 2008 City of West Linn Transportation System Plan.
- Evaluate signal warrants at site access across from Haggen site.
- Contrary to statements on page 12 of the TIA, additional traffic from the proposed project does indeed contribute to the operational issues at 10th Street/8th Avenue, including increased vehicle queuing. Update discussion of this in the TIA and provide ideas for how this project could mitigate its impacts to this intersection.

In addition, the following issues need to be addressed:

- ODOT will need to approve traffic signal phasing, timing, and/or lane configuration changes to the Blankenship Rd/Salamo Rd/10th Street intersection before it can be included as a mitigation measure. Has ODOT approved the proposed changes at this intersection?

¹ Tannler Mixed-Use Project Traffic Impact Analysis, Mackenzie, July 10, 2015.



- Signal warrant analysis for the Blankenship Rd/Tannler Dr intersection (or the site access across from Haggen) should consider ALL applicable warrants, not just the peak hour Warrant 3. What about 8-hour warrant or safety warrant?
- For the Synchro analysis at 10th Street/Blankenship Drive (with mitigation), include a larger lane utilization factor for the westbound left turns to model some expected level of lane imbalance common with dual left turns. ODOT will likely want to see this too.
- Under mitigation, there is a recommendation to provide a crosswalk. An analysis needs to be conducted at this location to determine the appropriate crossing treatments (median, signage, flashers, etc). Has lighting been evaluated to ensure adequate light levels?

MACKENZIE.

DESIGN DRIVEN | CLIENT FOCUSED



TRANSPORTATION IMPACT ANALYSIS

To
West Linn, Oregon

For
Tannler Mixed-Use Project

Submitted
July 10, 2015
Updated and resubmitted
July 20, 2015

Project Number
2130529.05



MACKENZIE
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I. EXECUTIVE SUMMARY

This Transportation Impact Analysis (TIA) has been prepared in support of the Tannler Drive Mixed-Use project application. The project site is located in West Linn, Oregon, at the northwest corner of Blankenship Road and Tannler Drive. The currently proposed project will consist of up to 210 apartment dwelling units and up to 3,500 square feet of commercial space.

The proposed development is anticipated to generate 150 AM peak hour trips, 176 PM peak hour trips, and 1,655 weekday trips. The buildout year for the proposed development was assumed to be 2017, based on current schedules for construction and full occupancy. Background growth was assumed to be 2% per year, for two years. In-process developments were obtained from the City of West Linn's projects website, and included 61 single-family lots in several small developments located primarily to the north of the site.

Based on review of capacity and safety analyses, all study area intersections are expected to meet safety standards established by the City of West Linn and ODOT. Three of the study area intersections are expected to fall below mobility standards established by the City (level of service) and ODOT (volume-to-capacity ratio).

Existing and pre-development queues exceed available storage at the westbound and northbound approaches to the 10th Street/Blankenship Road/Salamo Road intersection.

Mitigation is recommended at four locations to offset impacts of the project. These include the following:

- At the 10th Street/Blankenship Road/Salamo Road intersection, convert the westbound through lane on Salamo to a shared through/left lane with supporting signal and striping changes, and lengthen the storage available for the northbound left turn lane by changes to the striping.
- At the Tannler approach to Blankenship, stripe separate left and through/right lanes. The current approach has a single lane. This striping change can be made within the existing roadway width. With mitigation, the proposed project will not worsen excessive queues.
- Pay a proportionate share, in the amount of \$24,010, towards the cost of improvements at the 10th Street/8th Avenue/8th Court intersection and the 8th Court extension.
- Enhance the pedestrian crossing at the west end of the Blankenship driveway where pedestrian ramps are already provided, to encourage walking and improve pedestrian safety.

II. INTRODUCTION

Project Description

This Transportation Impact Analysis (TIA) has been prepared in support of a Class II Development Review application for the Tannler Drive Mixed-Use project. The proposed project site is located in West Linn, Oregon, at the northwest corner of Blankenship Road and Tannler Drive, shown in Figure 1. The proposed project will consist of approximately 210 apartment dwelling units and seven units of commercial space totaling up to 3,500 square feet. A proposed site plan draft is presented in Figure 2.

The site is zoned Office Business Center (OBC) in which multiple-family units, as a mixed use in conjunction with commercial development, only above the first floor of the structure is allowed. The commercial space is to be located on the ground floor of each of the seven apartment buildings (about 500 square feet per building). Each space could be used for small office or limited retail uses as described in the OBC zoning code.

The remaining parcel at the corner of the Blankenship/Tannler intersection, and immediately south of the site, is not included in the application. At the time of development, a separate analysis would be prepared to address its specific impacts. Access is anticipated to be shared at the Blankenship driveway.

Scope of Report

A Traffic Impact Analysis (TIA) is required for this development proposal in accordance with 55.125 of the Community Development Code, which notes it may result in “conditions of approval to address or minimize any adverse impacts created by the proposal.” General TIA requirements are outlined in 85.170.A.B.2.

A scoping letter dated March 31, 2015, was provided to the City of West Linn and was approved with a few minor changes. The City required this TIA to be completed in accordance with ODOT *Best Practices for Traffic Impact Studies*, dated June 2006. The City also required that the commercial trip generation be represented by LUC 565 for “Day Care Center” to account for the highest trip generating use allowed in the OBC zone. The City also required the addition of the 10th Street/8th Avenue/8th Court intersection to the study area, and required identification of bike/pedestrian safety and crossings/access of study area corridors.

These assumptions have been confirmed with the City’s traffic consultant, DKS. Copies of the original scoping letter and email responses from City staff and ODOT staff are included in Appendix J.

Study Area

The proposed study area is generally based on intersections at which the development will add more than 20 peak hour trips, plus the site access locations. The study area intersections, as confirmed by City staff, include the following:

- Tannler Drive/North Access
- Blankenship Road/13th Street
- Blankenship Road/Site Access/Haggen’s Access
- Blankenship Road/Tannler Drive
- 10th Street/Blankenship Road/Salamo Road

- 10th Street/I-205 Southbound Ramps
- 10th Street/I-205 Northbound Ramps
- 10th Street/8th Avenue/8th Court
- 10th Street/Willamette Falls Drive

Analysis Scenarios

Three scenarios are included in this analysis, consisting of the following for the weekday AM and PM peak hours:

- 2015 Existing Conditions
- 2017 Pre-Development without Project
- 2017 Post-Development with Project

III. EXISTING CONDITIONS

Site Conditions

The proposed project will be located at 2444 Tannler Drive in West Linn, Oregon. The site currently consists of three parcels zoned Office Business Center (OBC), all of which are currently vacant. A lot line adjustment is proposed that will separate the approximately 10.1 acres of the project. The site has frontage on Tannler Drive and access easement to the existing driveway on Blankenship Road, opposite the driveway for the Haggen shopping center.

Vehicular Transportation Facilities

The roadways in the study area and their characteristics are summarized in Table 1, below. The existing lane configurations and traffic control devices for the study area intersections are presented in Figure 3.

TABLE 1 – ROADWAY CHARACTERISTICS						
Roadway	Functional Classification	Posted Speed (mph)	Travel Lanes	Bike Lanes	On-Street Parking	Sidewalks
I-205	Interstate Freeway	55	4	No	No	No
10th Street	Arterial	Not Posted	2	Partial	No	Yes
Salamo Road	Arterial	40/35	2	No	No	No
Blankenship Road	Collector	25	2	Partial	No	Yes
Tannler Drive	Collector	25	2	Shoulder	Yes	Partial
Willamette Falls Drive	Principal Arterial	20/45	2	Yes	Yes	Yes

Bicycle and Pedestrian Facilities

Sidewalks are currently provided on 10th Street, Blankenship Road, Tannler Drive, and Willamette Falls Drive. On Tannler Drive, a curb tight sidewalk is provided north of the site frontage. A continuous sidewalk is provided along the south side of Blankenship and west side of 10th Street that provides access between the site and Willamette Falls Drive.

Bicycle lanes are available on portions of 10th Street, Blankenship Road, Tannler Drive, and Willamette Falls Drive. On Tannler Drive, a striped shoulder is provided, which is not specifically identified as a bicycle lane.

Clearly marked crosswalks and complete connecting sidewalks are available at the Blankenship Road/13th Street intersection. At the Blankenship Road/Salamo Road/10th Street intersection, crosswalks are provided at two of the three approaches. At the I-205 Ramps with 10th Street, crosswalks are provided on three of the approaches.

Pedestrian ramps are provided immediately west of the driveways for the site and Haggen Center, but no crosswalk is striped.

Transit Facilities

Tri-Met currently services the West Linn neighborhood of Willamette and Oregon City via the 154 line. The route travels between the Willamette stop, located at the northeast corner of the project's Blankenship Road access, and the Oregon City Transit Center. Service along this route is only provided during weekdays. The route map and schedules are provided in Appendix C.

Existing Traffic Counts

Intersection turning movement counts were conducted on April 14, 2015, in the AM and PM peak hours at the eight study area intersections. In accordance with standard practice, the counts covered the two hour periods between 7:00 to 9:00 AM in the morning and 4:00 to 6:00 PM in the afternoon.

In accordance with ODOT standards, a system peak hour was identified for the study area. The AM peak hour was determined to be 7:20 to 8:20 AM, and the PM peak hour was determined to be 4:15 to 5:15 PM.

ODOT's *Best Practices for Traffic Impact Studies* suggests a seasonal adjustment be applied to the peak hour volumes for highway facilities. I-205 is considered an Interstate Urbanized facility, and a seasonal adjustment of 1.05 applies. Because this analysis only addresses the I-205 ramps, and the ramp volumes likely are not affected by seasonal fluctuations in the same way as the mainline freeway, no adjustment has been applied. We would also note that traffic counts were obtained while school was in session, which likely results in higher traffic volumes than summer months at the study area intersections.

Existing traffic volumes are presented in Figures 4A and 4B. Copies of intersection turning movement counts are provided in Appendix B.

Truck Percentages

Existing truck percentages at the study area intersections are listed in the following table for the average of each peak hour.

Truck percentages were used in the intersection capacity analyses for each scenario based on the existing percentage by movement. The raw turning movement counts with the truck percentages by movement and can be found in Appendix B.

TABLE 2 – TRUCK PERCENTAGES		
Intersection	Average Truck Percentage	
	AM Peak Hour	PM Peak Hour
Tannler Drive/Site Access	3.2	0.0
Blankenship Road/13th Street	1.9	0.4
Blankenship Road/Site Access/Haggen's Access	4.4	1.0
Blankenship Road/Tannler Drive	3.1	1.7
10th Street/Blankenship Road/Salamo Road	5.8	1.0

10th Street/I-205 SB Ramps	5.6	6.4
10th Street/I-205 NB Ramps	3.0	2.7
10th Street/8th Avenue/8th Court	2.3	1.3
10th Street/Willamette Falls Drive	5.3	2.8

IV. PRE-DEVELOPMENT CONDITIONS

Background Traffic Growth

Background traffic growth for this project was originally estimated using previous counts from the 2006 report and existing 2015 counts. Growth for all movements on average showed a decline of 6% during the AM peak hour and a decline of about 3% during the PM peak hour. Traffic counts from 2010 for the Blankenship Road/Tannler Drive and Blankenship Road/Salamo Road/10th Street intersections also showed negative growth, from 2006 to 2010, as well as from 2010 to 2015. However, a conservative 2% annual growth was established based on the City's TSP Draft Update, as suggested by the City's traffic consultant. Background growth traffic volumes are presented in Figures 5A and 5B. Traffic counts from 2006 and 2010 are provided in Appendix E.

In-Process Traffic Volumes

In-process traffic volumes are volumes for projects that have been approved, but have not yet been constructed. In-process developments were obtained from the City's projects page and were confirmed with City staff. Sixty-one single-family lots which are approved or are expected to be approved were assumed to contribute to in-process traffic volumes. These lots are north of I-205. Developments south of I-205, comprising eight single-family lots, were assumed to minimally affect the study area, and therefore were not included in the analysis. ITE trip generation estimates were developed for the 61 single-family lots using the equation for "Single-Family Detached Housing" (LUC 210). Eighteen percent of the in-process traffic was assumed to travel via Tannler Drive, while the remaining trips were assumed to travel via Salamo Road. In-process volumes are presented in Figures 6A and 6B. In-process development information is provided in Appendix F.

Pre-Development Traffic Volumes

The pre-development traffic volumes are a combination of existing traffic, background growth, and in-process traffic. These volumes are representative of traffic conditions during the build-out year for the project, but before the completion of the project. Any unsatisfactory traffic conditions in this analysis are as a result of background traffic and not as a result of the addition of the project traffic. Figures 7A and 7B depict pre-development traffic volumes for the AM and PM peak hour analysis periods.

Planned Transportation Improvements

The City of West Linn Capital Improvement Plan (CIP), Fiscal Years 2016-2021, was reviewed for planned improvements. The only planned improvement in the study area is the 10th Street/I-205 Corridor Improvements project (FY 2021). The planned improvements include lane additions, new street connections, new traffic signals, sidewalks, and bike lanes. Because the project is planned beyond the buildout year, it is not included in this analysis.

Transportation System Development Charges

Transportation System Development Charges (TSDC) will be assessed by the City in accordance with the *Transportation System Development Charges Study*, dated November 2014. This study also identifies

projects which are TSDC creditable. The table below presents City and ODOT projects within the study area that are SDC-eligible.

TABLE 3 – CITY OF WEST LINN SDC PROJECTS				
SDC Project	Location	Cost in 2014	SDC Eligible Costs	% Credit Eligible
Motor Vehicle 7	10th Street (I-205 SB Ramps to 8th Court)	\$2,031,906	\$2,031,906	100.0%
Motor Vehicle 8	10th Street (8th Ave to Willamette Falls Drive)	\$602,940	\$125,431	20.8%
Motor Vehicle 9	Blankenship Road /10th Street	\$627,057	\$627,057	100.0%
Motor Vehicle 10	10th Street /Willamette Falls Drive	\$1,000,880	\$1,000,880	100.0%
Motor Vehicle 11	10th Street/8th Avenue/8th Court	\$24,118	\$5,017	20.8%
Motor Vehicle 12	10th Street/I-205 NB Ramps	\$1,248,085	\$1,248,085	100.0%
Motor Vehicle 13	8th Court	\$2,502,199	\$520,538	20.8%
ODOT Motor Vehicle 22	I-205/10th Street Interchange	\$27,132,279	\$5,426,456	20.0%
Subtotal		\$35,164,464	\$10,985,330	31.2%
Pedestrian 41	Tannler Drive (Blankenship Road to Greene Street)	\$275,000	\$331,617	100%
Pedestrian 52	Blankenship Road (Under I-205)	\$72,353	\$15,052	20.8%
Subtotal		\$335,000	\$403,970	100%
TOTAL		\$35,573,434	\$11,069,409	

V. SITE DEVELOPMENT

The proposed project will consist of up to 210 apartment dwelling units and up to 3,500 square feet of commercial space.

Proposed Trip Generation

Trip generation estimates have been prepared for the proposed uses with the Institute of Transportation Engineers' (ITE) *Trip Generation*, 9th Edition. The following land uses were used to estimate the traffic generated by the project.

- Apartments – LUC 220
- Day Care Center – LUC 565

The “Apartments” land use was best representative of the residential portion of the project due to its size and nature. There will be approximately 210 units that will be developed, and the units will most likely be rented on an annual basis.

There will be seven commercial spaces at approximately 500 square feet each, totaling up to 3,500 square feet. Due to the variability of occupants in the commercial spaces, City staff suggested that the “Day Care Center” land use, the highest trip generating land use allowed in the zone, be used to estimate the commercial trips. By applying the highest trip generating use, impacts of all allowed uses in the zone are addressed.

For purposes of this analysis, all trips are assumed to be “primary trips” that impact the surrounding transportation system. No reductions are therefore assumed for internal or pass-by trips. Internal trips are those trips that utilize more than one use at a site, such as a resident going to one of the commercial spaces. Pass-by trips are from vehicles already driving by the site on adjacent streets that visit the site, then continue in the direction they were traveling. Survey information for Day Care Centers (the assumed commercial use for purposes of this analysis) as presented in ITE’s *Trip Generation Handbook* indicates no pass-by trips.

Truck trips are expected to be a small percentage of the site trips, and would be related to residents moving and deliveries to the commercial spaces and the residential units. It is assumed the existing study area truck percentages account for any truck impacts of the site.

Trip Generation Summary

The proposed development is estimated to generate 150 AM peak hour trips, 176 PM peak hour trips, and 1,655 daily trips. The trip generation for the proposed uses is shown in Table 4, below.

TABLE 4 – PROPOSED TRIP GENERATION									
ITE Code	Land Use	Size	AM Peak Hour			PM Peak Hour			Daily
			Enter	Exit	Total	Enter	Exit	Total	
220	Apartment	210 d.u.	21	86	107	86	47	133	1,396
565	Day Care Center	3.5 KSF	23	20	43	20	23	43	259
	Total		44	106	150	106	70	176	1,655

Trip Distribution and Traffic Assignment

The distribution of site trips for the project was estimated based on a review of existing traffic patterns and likely destinations of the tenants. This distribution is similar to that used in prior analyses for the site.

Trip distribution for the AM and PM peak hours is applied as follows:

- 5% to/from the north on Tannler Drive
- 5% to/from the west on Blankenship Road
- 10% to/from the northeast on Salamo Road
- 5% to/from the south on the Haggen Center driveway (southeast corner of 13th Street and Blankenship Road)
- 40% to/from the east on I-205
- 25% to/from the west on I-205
- 5% to/from the east on Willamette Falls Drive
- 5% to/from the west on Willamette Falls Drive

Based on the above trip distribution, the proposed project peak hour trips were assigned to the external road network. The AM and PM peak hour trip distribution and assignment is shown in Figures 8A and 8B.

Post-Development Traffic Volumes

The post-development traffic volumes were derived by adding the project trips to the 2017 pre-development traffic volumes. Figures 9A and 9B present both the AM and PM peak hour post-development traffic volumes for the 2017 buildout year.

VI. INTERSECTION AND ROADWAY ANALYSIS

Operation Standards

Intersection operation standards are generally measured by three mobility standards: volume-to-capacity (v/c) ratio, level-of-service (LOS), and delay. Signalized intersections are measured by intersection averages. All-way stop-controlled intersections are also measured by the intersection average, but HCM 2010 methodology does not provide a v/c ratio. Unsignalized intersections are measured by the critical stop controlled movement v/c ratio, LOS, and delay.

The 10th Street interchange with I-205 is under ODOT jurisdiction, including the Blankenship/Salamo intersection which runs on the same controller as the southbound I-205 ramp. All other study area intersections are under City of West Linn jurisdiction.

The minimum operational standard specified in the City of West Linn *Transportation System Plan* is LOS D for all facilities except principal arterials, where the minimum is LOS E. ODOT uses the v/c ratio to measure performance of its roadways. ODOT's v/c operating standard for the I-205 interchange ramps and the Blankenship Road/10th Street intersection is 0.85.

Intersection operations were analyzed with the use of Synchro 8 software. ODOT's Analysis Procedures Manual (APM) requirements for intersection analysis were followed. The HCM 2010 methodology was used to report unsignalized intersection operations and the HCM 2000 was used to report signalized intersection operations. Signal timing information was obtained from ODOT staff, and is provided in Appendix G.

Operation Analysis

Table 4 presents AM and PM peak hour operation results for the 2015 Existing, 2017 Pre-Development, and 2017 Post-Development scenarios. The operations are presented as measured by v/c ratio, level of service (LOS), and delay (seconds). Signalized and all-way stop intersection results are representative of the entire intersection. Unsignalized intersection results are representative of the critical movement. The Synchro output reports are provided in Appendix H.

TABLE 5 – INTERSECTION OPERATIONS

Intersection	Peak Hour	2015 Existing	2017	
			Pre-Development	Post-Development
Tannler Drive/Site Access	AM	N/A	N/A	0.066-A-9.3
	PM	N/A	N/A	0.042-A-9.1
Blankenship Road/13th Street	AM	0.138-B-14.7	0.145-C-15.0	0.150-C-15.3
	PM	0.138-C-18.0	0.148-C-18.8	0.150-C-19.1
Blankenship Road/Site Access/Haggen's Access	AM	0.138-B-14.8	0.149-C-15.3	0.209-C-19.7
	PM	0.140-C-21.7	0.335-C-20.8	0.377-C-23.1
Blankenship Road/Tannler Drive	AM	0.392-C-23.8	0.457-D-27.2	0.745-F-52.1
	PM	0.406-E-35.2	0.499-E-44.5	0.916-F-121.7
10th Street/Blankenship Road/Salamo Road	AM	0.78-C-26.8	0.85-D-36.7	0.89-C-33.3
	PM	0.65-C-22.6	0.68-C-25.1	0.77-C-25.9
10th Street/I-205 SB Ramps	AM	0.71-C-34.2	0.78-D-42.2	0.78-D-40.4
	PM	0.66-C-33.4	0.71-D-36.2	0.75-D-39.5
10th Street/I-205 NB Ramps	AM	0.61-C-25.3	0.66-C-25.9	0.70-C-26.8
	PM	0.56-B-14.0	0.60-B-15.4	0.64-B-18.0
10th Street/8th Avenue/8th Court	AM	0.457-E-46.1	0.522-F-55.5	0.533-F-57.5
	PM	1.559-F-385.3	1.864-F-526.6	1.941-F-564.3
10th Street/Willamette Falls Drive	AM	N/A-C-24.5*	N/A-D-28.7*	N/A-D-29.9*
	PM	N/A-D-27.0*	N/A-D-31.7*	N/A-D-32.6*

Note: Capacity results are reported as v/c-LOS-Delay

Results in **BOLD** font exceed capacity standards. *All-way stop controlled intersections do not report an overall v/c ratio.

Three intersections fall below City and ODOT standards, and are addressed below.

10th Street/8th Avenue/8th Court

This intersection is known to currently fail, and has been reviewed by the City and other developments over the years. The long term plan as presented in the City's Transportation System Plan is to extend 8th Court to a new intersection with Willamette Falls Drive and limit this intersection to right turns from 8th Avenue/Court. There is currently no schedule for this improvement. Trips from the proposed development are not expected to add to the failing left-turn movements, but the addition of site trips on 10th Street will result in longer delays.

Blankenship Road/Tannler Drive

This intersection is currently operating at a level of service "D" for left turns in the PM peak hour. With the addition of in-process and background traffic, the level of service will fall to an "E." With the addition of site trips, the intersection operation is anticipated to be at an "F" based on delay. The capacity would be at 92% for the movement.

10th Street/Blankenship Road/Salamo Road

This intersection is expected to operate at the limit of ODOT's 0.85 v/c standard with the addition of background and in-process traffic. Site trips will result in a v/c of 0.89. Although the intersection

operates below capacity, the close spacing with the I-205 southbound off-ramp and coordinated signals (both intersections run off the same traffic signal controller), cause long queues on the Salamo approach, especially in the AM peak hour.

Queuing and Storage

A queuing analysis was conducted for the study area intersections during the AM and PM peak hours. The 95th percentile queue lengths were extracted from SimTraffic 8 following ODOT's APM. Available queue storage lengths were estimated using Google Earth Pro software, and rounded to the nearest 10 feet. Queue demand results were rounded to the nearest 25 feet to represent average vehicle lengths.

Table 6 presents the 95th percentile queuing analysis for the AM and PM peak hours. The SimTraffic output reports are provided in Appendix I.

TABLE 6 – AM AND PM PEAK HOUR 95TH PERCENTILE QUEUES (FEET)

Intersection	Movement	Available Storage	2015 Existing	2017	
				Pre-Development	Post-Development
Tannler Drive/Site Access	EB Lt+Rt		N/A	N/A	50/50
	NB Lt		N/A	N/A	25/25
Blankenship Road/ 13th Street	NB Lt+Th+Rt	75+	<25/<25	<25/<25	<25/<25
	SB Lt+Th+Rt	380	50/50	50/50	50/50
	EB Lt+Th+Rt	350	<25/<25	25/25	<25 /25
	WB Lt+Th+Rt	440	<25/<25	<25/<25	<25/<25
Blankenship Road/Site Access/Haggen's Access	WB Lt	100*	25/50	25/50	25/50
	EB Lt	440	<25/<25	<25/<25	25/<25
	NB Lt+Th+Rt	25	50/75	50/75	50/75
	SB Lt+Th+Rt	75	25/50	25/50	50/75
Blankenship Road/ Tannler Drive	EB Lt	100*	25/25	25/25	25/25
	WB Lt	100	50/50	25/50	50/50
	SB Lt+Th+Rt	500+	75/75	75/75	125/175
	NB Lt+Th	75	25/50	25/50	25/50
	NB Rt	75	50/75	50/75	50/75
10th Street/Blankenship Road/Salamo Road	EB Th	240	75/150	100/150	125/175
	EB Rt	190	75/150	150/125	200/150
	WB Lt	180	275/275	300/275	275/275
	WB Th	500+	400/300	500/325	725/475
	NB Lt	65	75/100	100/100	100/125
	NB Rt	125	<25/25	25/50	25/75
10th Street/I-205 Southbound Ramps	WB Lt+Th	250	150/ 200	175/250	200/250
	WB Rt	500+	100/150	125/200	125/250
	NB Lt	200	225/175	275/225	275/250
	NB Th	460	325/275	350/325	350/350
	SB Th	170	125/125	125/125	150/150
	SB Th+Rt	170	75/75	125/75	125/100
10th Street/I-205 Northbound Ramps	EB Lt+Th	200	175/100	175/100	200/150
	EB Rt	500+	75/50	125/50	275/75
	NB Th	240	225/150	250/150	250/200
	NB Rt	100	175/125	200/125	225/150
	SB Lt	160	175/175	200/200	225/200
	SB Th	430	125/175	150/200	300/250
10th Street/8th Avenue/8th Court	EB Lt	200	50/200	50/ 275	75/ 550
	EB Th+Rt	200	25/125	25/125	25/200
	WB Lt+Th	150	75/75	175/100	200/125
	WB Rt	150	100/75	125/100	125/100

	NB	160	75/75	100/75	150/125
	SB Lt	100	50/50	75/50	75/75
	SB Th+Rt	240	<25/<25	<25/25	<25/25
10th Street/Willamette Falls Drive	EB Lt	220	125/175	175/200	150/ 250
	EB Th	180	75/ 225	150/ 225	75/ 500
	WB Th+Rt	120	350/125	425/125	600/150
	SB Lt	120	50/75	50/75	50/75
	SB Rt	170	75/75	75/75	75/100

Results are presented for AM/PM queues

BOLD font indicates available storage is exceeded

*Effective storage with back to back left turns

The queuing analysis identified that existing queues exceed the available storage during the AM and PM peak hours at several locations; most prominently, the westbound Salamo approach to 10th Street and 10th Street northbound approaching Blankenship.

At a number of other locations, queues will exceed the available storage, but the addition of site trips has little impact on the queue length. For example, the available storage for left turns between the I-205 ramps on 10th Street is limited, but exceeded with existing conditions. These peak left-turn queues will extend into the through lane, but will not block any other intersections.

Mitigation measures to address queuing impacts are addressed in the following section.

Auxiliary Lanes

The need for a left-turn lane at the site access on Tannler Drive was reviewed. It is noted, in Figure 8-3 of the City's TSP, that center (left) turn lanes on a Collector may be omitted where future traffic volumes are less than 5,000 daily trips. The peak hour volumes on Tannler with the project are less than 200 vehicles in the peak hour, which indicates the daily volume will be less than 2,000 trips. ODOT left-turn warrants presented in the *Analysis Procedures Manual* were also reviewed, which consider the approaching, opposing, and left-turn volumes. The volumes anticipated with site development do not meet the warrants for a left-turn lane. Left-turn warrant sheets are included in Appendix K.

Signal Warrants

Signal warrants were checked using the Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition, for the Blankenship Road/Site Access and Blankenship Road/Tannler Drive intersections using 2017 Post-Development volumes, as well as the Blankenship Road/Site Access intersection under mitigation Alternative 5. For purposes of checking the vehicular volume signal warrants, volumes for the minor street approaches included all left-turn volumes, all through volumes, and half of the right-turn volumes. The major and minor street approaches were treated as single lanes. Below is a summary of the eight signal warrants that were reviewed. The results of the signal warrants are presented in Table 7.

Warrant 1 – Eight-Hour Vehicular Volume

This warrant requires that either Condition A or B be met for the eight-highest volumes. Condition A is used to measure the minimum vehicular volume, and requires 500 vehicles or more on the major street

(total of both approaches) and 150 vehicles or more on the higher-volume minor street approach. Condition B is used to measure the interruption of continuous traffic, and requires 750 vehicles or more on the major street (total of both approaches) and 75 vehicles on the higher-volume minor street approach.

Two hours of data was available for each the AM and PM peak hour, which was assumed to account for the four highest hours. The four-hour warrant volumes were adjusted accordingly using the existing traffic counts and the Post-Development volumes, resulting in a set of adjusted four-hour Post-Development volumes. Condition B was only met in two of the four-hour volumes at the Blankenship Road/Site Access intersection. Similarly, Condition B was only met in three of the four-hour volumes at the Blankenship Road/Tannler Drive intersection. It was assumed that Warrant 1 was not met at either intersection, since the four highest assumed hours of data did not meet the warrant thresholds.

Warrant 2 – Four-Hour Vehicular Volume

This warrant requires the four highest hour volumes to meet the volume thresholds on the Warrant 2, Four-Hour Vehicular Volume MUTCD graph. This warrant is used to measure the volume of intersecting traffic against the volume of through traffic on the major street. The four highest hours at the Blankenship Road/Site Access intersection did not meet the volume thresholds. The Blankenship Road/Tannler Drive intersection met the threshold during one of the PM peak hours. Warrant 2 was not met for either intersection. The Warrant 2 analysis is provided in Appendix K.

Warrant 3 – Peak Hour

This warrant requires the peak hour of an average day to meet the volume thresholds on the Warrant 3, Peak Hour MUTCD graph. This warrant is used to measure the volume of minor-street traffic at which the minor-street traffic suffers undue delay when entering or crossing the major street. Warrant 3 was not met for either intersection. The Warrant 3 analysis is provided in Appendix K.

Warrant 4 – Pedestrian Volume

This warrant requires that a volume threshold be met for the number of pedestrians crossing the major street, as well as the vehicular volume on the major street during any one hour for four hours during an average day. The minimum volume of pedestrians required during one hour to meet the warrant was 107. The highest number of pedestrians at either intersection during one hour was 22. Warrant 4 was not met for either intersection.

Warrant 5 – School Crossing

This warrant is used when school children cross the major street to ensure safety. There are no schools in the vicinity of either intersection, so this warrant was not applicable.

Warrant 6 – Coordinated Signal

This warrant is used when a coordinated signal system is in place, requiring the proper platooning of vehicles. The Blankenship Road/Salamo Road/10th Street intersection is signalized and spaced approximately 340 feet from the Tannler intersection and 690 feet from the Site Access intersection. The existing 10th Street signal is not coordinated. This warrant requires that the nearest signal be coordinated and located more than 1,000 feet away from the intersection in question. For these reasons, Warrant 6 was not met for either intersection.

Warrant 7 – Crash Experience

This warrant is intended for intersections where crashes are frequent and severe. Following the crash analysis in Table 8, it was noted that both intersections were found to have crash rates below the 1.0 crashes per million entering vehicles. Warrant 7 was not met for either intersection.

Warrant 8 – Roadway Network

This warrant is used to determine if the concentration and organization of traffic flow on a roadway network can be encouraged through signalization. This warrant requires that the existing or immediately projected entering volume is at least 1,000 vehicles per hour, during the peak hour of a typical weekday. Neither the Site Access nor Tannler Drive is expected to have an entering volume of 1,000 vehicles during the peak hour. Warrant 8 was not met for either intersection.

Warrant 9 – Intersection Near a Grade Crossing

This warrant is intended for intersections near railroad crossings and is only applied if any of the other warrants are not met. Warrant 9 was found to not apply to either intersection.

TABLE 7 – MUTCD SIGNAL WARRANTS			
Warrant	Met?		
	Blankenship Road/Tannler Drive	Blankenship Road/Site Access	Blankenship Road/Site Access (Alternative 5)
Warrant 1 – Eight-Hour Vehicular Volume	No	No	No
Warrant 2 – Four-Hour Vehicular Volume	No	No	No
Warrant 3 – Peak Hour	No	No	No
Warrant 4 – Pedestrian Volume	No	No	No
Warrant 5 – School Crossing	N/A	N/A	N/A
Warrant 6 – Coordinated Signal System	No	No	No
Warrant 7 – Crash Experience	No	No	No
Warrant 8 – Roadway Network	No	No	No
Warrant 9 – Intersection Near a Grade Crossing	N/A	N/A	N/A

Safety Analysis

Crash History

Crash data for the study area intersections was obtained from ODOT for the most recent five years available, from the beginning of 2009 through the end of 2013. The data was reviewed to determine crash rates. The crash rate is a measure of the number of crashes occurring per one million entering vehicles (MEV) per year. A crash rate less than 1.0 crashes/MEV is indicative of a fairly safe intersection. A crash rate greater than 1.0 crashes/MEV is indicative of an unsafe intersection, and requires further evaluation.

The crash rate is calculated by dividing the average number of crashes per year by the MEV per year. To calculate the MEV per year, the ADT is multiplied by 365 days a year to obtain AADT. The ADT is estimated by dividing the PM peak hour volume by a peak-to-daily factor of 10% to represent daily traffic.

The most prevalent crash types were angle crashes at unsignalized intersections and rear end crashes at signalized intersections. These crash types are typical due to unprotected turns at unsignalized intersections and abrupt braking as a result of red lights at signalized intersections. There are no significant safety concerns regarding the study area intersections.

Table 8 presents the crash rates for each study area intersection. Raw crash data can be found in Appendix D.

TABLE 8 – CRASH DATA BY YEAR								
Intersection	Number of Crashes						ADT	Crash Rate
	2009	2010	2011	2012	2013	Total		
Tannler Drive/North Site Access	0	0	0	0	0	0	1,770	0.00
Blankenship Road/13th Street	0	0	0	0	1	1	8,030	0.07
Blankenship Road/Site Access/Haggen's Access	0	0	0	0	1	1	9,260	0.06
Blankenship Road/Tannler Drive	0	2	1	0	2	5	11,190	0.24
10th Street/Blankenship Road/Salamo Road	2	0	0	0	2	4	15,550	0.14
10th Street/I-205 SB Ramps	1	2	1	4	2	10	16,510	0.33
10th Street/I-205 NB Ramps	3	1	1	3	3	11	15,490	0.39
10th Street/8th Avenue/8th Court	3	3	1	3	4	14	13,950	0.55
10th Street/Willamette Falls Drive	1	1	2	0	0	4	15,460	0.14

Bicycle and Pedestrian Safety

The crash data was reviewed for bicycle and pedestrian related crashes. None of the study area intersections had any reported bicycle or pedestrian related crashes from the beginning of 2009 through the end of 2013.

Sight Distances

The project's proposed driveways were evaluated for adequate sight distances. Sight distance is the length of road a driver needs to be able to see clearly, in order to safely cross an intersection. AASHTO's *A Policy on Geometric Design of Highways and Streets*, 6th Edition, provides recommended intersection sight distance and stopping sight distance as measured by vehicular speed along the intersecting roadway. All intersection sight distances are measured from a driver's eye height of 3.5 feet and a driver's position of 15 feet back from the edge of traveled way. The proposed driveway on Tannler Drive and the existing driveway on Blankenship Road were evaluated using a 25 mph posted speed.

The recommended intersection sight distance for a left turn from a stop controlled approach at this speed is 280 feet on a level roadway. Tannler Drive has a slope of approximately 13% approaching the proposed driveway from the south, which equates to a recommended distance of approximately 250 feet (for slopes over 6%). The available intersection sight distance is approximately 500 feet to the south at the Tannler driveway and 400 feet to the west at the Blankenship driveway. The recommended

intersection sight distance for a right turn from a stop controlled approach at 25 mph is 240 feet on a level roadway. Tannler Drive has about a 13% slope approaching the proposed driveway from the north, which equates to a recommended distance of approximately 260 feet (for slopes over 6%). The available intersection sight distance is approximately 780 feet to the north at the Tannler driveway and 290 to the east at the Blankenship driveway. Intersection sight distance is met at both driveways.

The stopping sight distance recommended on both roadways is 155 feet. Both roadways exceed this stopping sight distance recommendation in both directions from the proposed/existing driveways.

Horizontal and Vertical Geometry

No changes to the current horizontal and vertical geometry are proposed. Vertical geometry should be noted on Tannler Drive, where the roadway has a slope of approximately -13% approaching Blankenship Road. The slope was accounted for in the analysis.

Access Conflicts

The existing driveway on Blankenship Road is not anticipated to cause any access conflicts. Access spacing standards were obtained from the City's TSP, dated December 2008. The required spacing standard for a private driveway on Blankenship Road (a collector road) is 200 feet from a public intersection, and 150 feet from a private driveway. This existing driveway meets the access spacing standards.

Tannler Road is also a collector road, so the same access spacing standards apply at the proposed driveway. The driveway's location is approximately 215 feet north of the already approved, but not yet constructed, driveway on the east side of Tannler, and approximately 570 feet south of the Greene Street intersection. This proposed driveway meets established access spacing standards. The proposed driveway design shows no indication of conflict.

VII. MITIGATION

Mitigation measures were considered for the intersections of Tannler Drive with Blankenship Road, the 10th Street intersection with Blankenship Road/Salamo Road, and the 10th Street intersection with 8th Avenue/8th Court. CDC 55.100.I.1 allows the City to require construction or contribution of a proportionate share for necessary off-site improvements identified by the transportation analysis. CDC 55.125 allows the City to condition mitigation that either addresses or minimizes the impacts.

10th Street/Blankenship Road/Salamo Road

Mitigation for the intersection of 10th Street with Blankenship Road/Salamo Road was considered to address the queuing concerns as well as the v/c standard of 0.85. It is recommended that the westbound through lane on the Salamo approach be restriped to provide for a shared through/left lane. The left-turn volume is much higher, so providing two lanes from which to turn left provides a capacity and queuing improvement. This will require a change in the signal phasing and intersection striping, which were assumed to be consistent with ODOT standards. Restriping the northbound approach on 10th Street to lengthen the available storage for left turns to Blankenship Road is also recommended. This recommended mitigation improves pre-development conditions. Table 10 below presents the mitigation capacity results for the Blankenship Road/Salamo Road/10th Street intersection. Figure 10 presents the recommended striping.

TABLE 10 – INTERSECTION OPERATIONS WITH AND WITHOUT 10TH STREET MITIGATION				
Intersection	Peak Hour	2017		
		Pre-Development	Post-Development	Post-Development with Mitigation
10th Street/Blankenship Road/Salamo Road	AM	0.85-D-36.7	0.89-C-33.3	0.72-C-26.5
	PM	0.68-C-25.1	0.77-C-25.9	0.74-C-28.7
10th Street/I-205 SB Ramps	AM	0.78-D-42.2	0.78-D-40.4	0.71-C-32.6
	PM	0.71-D-36.2	0.75-D-39.5	0.74-D-37.1

Note: Capacity results are reported as v/c-LOS-Delay

Results in **BOLD** font exceed capacity standards.

*All-way stop controlled intersections do not report an overall v/c ratio.

Queue lengths decrease with the recommended mitigation measures at the Blankenship Road/Salamo Road/10th Street and 10th Street/I-205 Southbound intersections. The westbound through lane (recommended shared left-through) queue length at Blankenship and 10th Street decreases from 725 feet in the Post-Development to 325 feet with recommended mitigation during the AM peak hour, and from 475 feet to 250 feet during the PM peak hour. The northbound left lane queue length at 10th and I-205 decreases from 275 feet in the Post-Development to 250 feet.

With changes in the signal phasing and timing for the Salamo Road approach, there are also impacts on the intersection of 10th Street with the I-205 Southbound ramp. These results are also presented in Table 10 and show an improvement in the operation as more green time can now be provided to critical movements.

With the change in the lane utilization on the Salamo approach, we also assessed the volume of traffic that would likely choose each lane for left-turn movements. A review of existing conditions was conducted on Thursday afternoon, July 16, 2015, and Friday morning, July 17, 2015, to assess the

percentage of left turns from Salamo that turn right onto I-205 southbound. Detailed results and calculations are included in the appendix. The resulting lane utilization factors for the Salamo approach are 0.85 for the AM peak hour and 0.72 for the PM peak hour, which also accounts for the through volumes in the shared lane. This compares to a default lane utilization factor of 0.97 for exclusive double left-turn lanes.

Blankenship Road/Tannler Drive

Left turns from the Tannler Drive and Haggen Center driveway are anticipated to have long delays and not meet City standards for level of service "D." This intersection is addressed in the 2008 TSP Appendix I with three Tannler Road Access Alternatives. These alternatives include aligning Tannler to the west opposite the west Haggen Center driveway, aligning Tannler to the east opposite 10th Street, and limiting the intersection to right turns. It should be noted that all of these alternatives identified a future traffic signal at the west Haggen Center driveway to Blankenship Road. A realignment to the west was noted as the preferred option, but also the most expensive. At this time no planning or funding for such an alternative has been provided. The Tannler Mixed Use development will preclude this westerly alignment alternative, leaving the realignment to the east and right turn limitation as the remaining options.

Realignment to the east is still an option for future improvements in the area, but the cost of such an improvement would likely exceed the proportionate impacts of this project.

Limiting the Tannler approach to right turns would address the long delays at the intersection, but cause left-turn traffic to reroute to Salamo and Greene Street. A limitation to right turns may also impact the east Haggen Center driveway, depending on how a median was configured.

A total of six alternatives are analyzed for addressing or minimizing impacts at the Tannler approach to Blankenship, including the City's identified right-turn limitation alternative. Each alternative is described below, and intersection analysis results are presented in Tables 9A and 9B, along with the pre- and post-development conditions from Table 5. Note the recommended mitigation for the 10th Street/Blankenship Road/Salamo Road intersection is assumed in the alternatives analysis.

1. Install a traffic signal

A signal would address the City's operational standards, but as noted in the signal warrant section, the volumes at development of the site would not meet any of the signal warrants. Also, the proximity to the signal at 10th Street complicates the operation of a signal at this location, and needs to be carefully coordinated and approved by ODOT. For these reasons, and based on prior discussions with ODOT staff, it may be challenging to have a signal approved at this location.

2. Stripe separate lanes for left turns and through/right movements

This will improve the operation of the Tannler approach from the current single lane configuration, and allow right turns to occur without waiting for any left turning vehicles. The striping would minimize the project impacts, but not result level of service "D" operation. Left turns would still experience long delays. It should be noted there is not a capacity constraint, just long delays that don't meet the City's standard. For this alternative, we assumed half of the site traffic that would turn left from Tannler Drive to Blankenship Road would instead choose to turn left at the shared driveway to Blankenship.

3. Install a median to restrict side street approaches to right-in/right-out movements

This alternative addresses the operational standard at the intersection, but causes a reroute of left turns and through trips from both the Tannler approach and Haggen driveway, increasing the traffic volumes on Salamo, Greene Street, and the east Haggen driveway. The resulting volume at the east Haggen driveway would cause it to fail. The increase in volumes at the 10th Street/Blankenship Road/Salamo Road result in longer delays and a level of service "E."

4. Limiting only the Tannler Drive approach to right-in/right-out

This alternative addresses operational standards at all intersections reviewed. Note the East Haggen Driveway would remain full movement, which would require unique median treatments. Traffic volumes on Salamo and Greene Street will increase as left turns and through movements to and from Tannler are rerouted, which is expected to be 110 vehicles in the peak hours based on existing counts.

5. Restricting the east Haggen driveway opposite Tannler Drive to right-in/right-out

This alternative is suggested for the purpose of removing the left-turn lane on Blankenship at the east driveway to reduce delays for left turns from Tannler and to allow striping of two full lanes eastbound approaching the 10th Street signal.

Site impacts are mitigated by bringing the level of service back to pre-development conditions level of service "E" and slightly better delay at the Tannler approach, but causes the shared driveway and west Haggen Center driveway to exceed operational standards.

6. Alternative 5 plus a signal at the west Haggen driveway

This alternative builds on Alternative 5. Signal warrants were found to not be met, but a traffic signal at this location is consistent with the City's TSP and prior analyses. The result is all intersections operating at acceptable levels of service. As with Alternative 5, access to the Haggen Center would be limited.

TABLE 9A – INTERSECTION OPERATIONS WITH AND WITHOUT TANNLER MITIGATION

Intersection	Peak Hour	2017				
		Pre-Development	Post-Development	Alternative 1 (Signalization)	Alternative 2 (Restripe)	Alternative 3 (RI-RO)
Blankenship Road/Site Access/Haggen's Access	AM	0.149-C-15.3	0.209-C-19.7	0.209-C-19.7	0.295-C-21.7	0.388-D-30.0
	PM	0.335-C-20.8	0.377-C-23.1	0.377-C-23.1	0.415-D-33.4	0.669-F-75.1
Blankenship Road/Tannler Drive	AM	0.457-D-27.2	0.745-F-52.1	0.53-C-26.9	0.597-E-44.4	0.053-B-10.8
	PM	0.499-E-44.5	0.916-F-121.7	0.65-B-19.3	0.676-F-99.8	0.077-B-12.3
10th Street/Blankenship Road/Salamo Road	AM	0.85-D-36.7	0.89-C-33.3	0.72-C-30.2	0.72-C-30.2	0.67-D-40.8
	PM	0.68-C-25.1	0.77-C-25.9	0.74-D-36.7	0.74-D-36.7	0.82-E-60.0
10th Street/I-205 SB Ramps	AM	0.78-D-42.2	0.78-D-40.4	0.70-C-31.1	0.70-C-31.1	0.70-C-29.6
	PM	0.71-D-36.2	0.75-D-39.5	0.73-C-34.1	0.73-C-34.1	0.73-C-33.2

Note: Capacity results are reported as v/c-LOS-Delay
Results in **BOLD** font exceed capacity standards.

*All-way stop controlled intersections do not report an overall v/c ratio.

TABLE 9B – INTERSECTION OPERATIONS WITH AND WITHOUT TANNER MITIGATION

Intersection	Peak Hour	2017				
		Pre-Development	Post-Development	Alternative 4 (RO)	Alternative 5 (Restricted Driveway)	Alternative 6 (Signalized Driveway)
Blankenship Road/Site Access/Haggen's Access	AM	0.149-C-15.3	0.209-C-19.7	0.300-C-22.1	0.380-D-29.2	0.49-B-12.6
	PM	0.335-C-20.8	0.377-C-23.1	0.427-D-34.7	0.654-F-71.8	0.62-C-21.0
Blankenship Road/Tanner Drive	AM	0.457-D-27.2	0.745-F-52.1	0.049-B-10.3	0.464-D-29.1	0.464-D-29.1
	PM	0.499-E-44.5	0.916-F-121.7	0.066-B-11.2	0.414-E-43.7	0.414-E-43.7
10th Street/Blankenship Road/Salamo Road	AM	0.85-D-36.7	0.89-C-33.3	0.70-E-55.1	0.72-C-30.3	0.72-C-30.3
	PM	0.68-C-25.1	0.77-C-25.9	0.82-E-60.0	0.75-D-37.1	0.75-D-37.1
10th Street/I-205 SB Ramps	AM	0.78-D-42.2	0.78-D-40.4	0.70-C-29.5	0.70-C-31.1	0.70-C-31.1
	PM	0.71-D-36.2	0.75-D-39.5	0.73-C-33.2	0.73-C-34.1	0.73-C-34.1

Note: Capacity results are reported as v/c-LOS-Delay

Results in **BOLD** font exceed capacity standards.

*All-way stop controlled intersections do not report an overall v/c ratio.

Alternative 2 is the preferred mitigation for the Blankenship Road/Tanner Drive intersection. It provides a separate left-turn lane and right/through lane within the existing roadway width. While the restriping will reduce delays for the Tanner approach, left-turn delays will still be long. It is anticipated traffic leaving the site will find using the shared driveway on Blankenship to have less delay, which is why we assumed half of these left turns would choose to reroute to the Blankenship driveway for this analysis. While this alternative does not meet the City's level of service "D" standard, it does minimize the site's impacts, provides a level of service "C" for right turns, and keeps Tanner Drive open for all turning movement, which also minimizes the potential for reroute of traffic onto local streets such as Greene Street.

10th Street/8th Avenue/8th Court

The 10th Street/8th Avenue/8th Court intersection currently exceeds standards, but the delays for left-turn movements from the side streets are longer with the addition of project trips. A peak hour prohibition on left turns was implemented, but counts show drivers are still making the turn. This intersection is listed in the City's TSP as a Motor Vehicle Master Plan and Action Plan Project. The recommended improvements for this intersection include limiting turns to right-in/right-out, extending 8th Avenue to Dollar Street, and extending 8th Court to Willamette Falls Drive. This project is current not funded or scheduled. The improvements are listed as Motor Vehicle projects 11 and 13 in the City's SDC list, with a total cost of \$2,526,317. Because the cost of the improvement is significantly more than the project's share of the impact, we recommended the City collect a proportionate share of the project's impacts for use on the future project. During the PM peak hour, the proportion of project trips to total trips is approximately 1.2%. The project is already paying SDC, which will fund 20.8% of the improvements, so the share of non-SDC funds is \$24,010.

Pedestrian Enhancements

Existing pedestrian ramps located west of the shared site/Haggen driveway on Blankenship Road are anticipated to be used by residents, tenants, and customers of the project. While enhanced pedestrian

crossings are provided nearby at 13th Avenue, pedestrians are not likely to travel out of direction to use it. In order to encourage walking and improve pedestrian safety crossing Blankenship Road, we recommend the pedestrian crossing be enhanced to include striping, signing and illumination as needed.

VIII. SUMMARY

This analysis addresses requirements established by the City of West Linn and ODOT. The following are key findings supported by these analysis results for the proposed mixed-use multifamily and commercial development.

Existing Conditions

- The proposed project site is approximately 10.1 acres and is currently zoned Office Business Center (OBC).
- Sidewalks are currently available along portions of 10th Street, Blankenship Road, Tannler Drive, and Willamette Falls Drive.
- Bicycle lanes and striped shoulders are currently available along portions of 10th Street, Blankenship Road, Tannler Drive, and Willamette Falls Drive.

Safety

- Historical crash data suggests there are no significant safety concerns regarding the study area intersections.
- Sight distance is met at both the proposed and existing driveways; no access issues are anticipated at either driveway.

Site Development

- The proposed development is assumed to be fully occupied in 2017 based on current construction schedules and will consist of approximately 210 multifamily dwelling units and up to 3,500 square feet of commercial space.
- Based on ITE trip generation rates, the proposed project is anticipated to generate 150 AM peak hour trips, 176 PM peak hour trips, and 1,655 daily trips.

Traffic Operations

- Under existing conditions, the 10th Street/8th Avenue/8th Court intersection exceeds the City's LOS standard of D, and under pre-development conditions, the Blankenship/Tannler Drive intersection exceeds LOS standard.
- As a result of the project, the 10th Street/I-205 Southbound Ramps intersection exceeds ODOT's capacity standard of 0.85.

Queuing Analysis

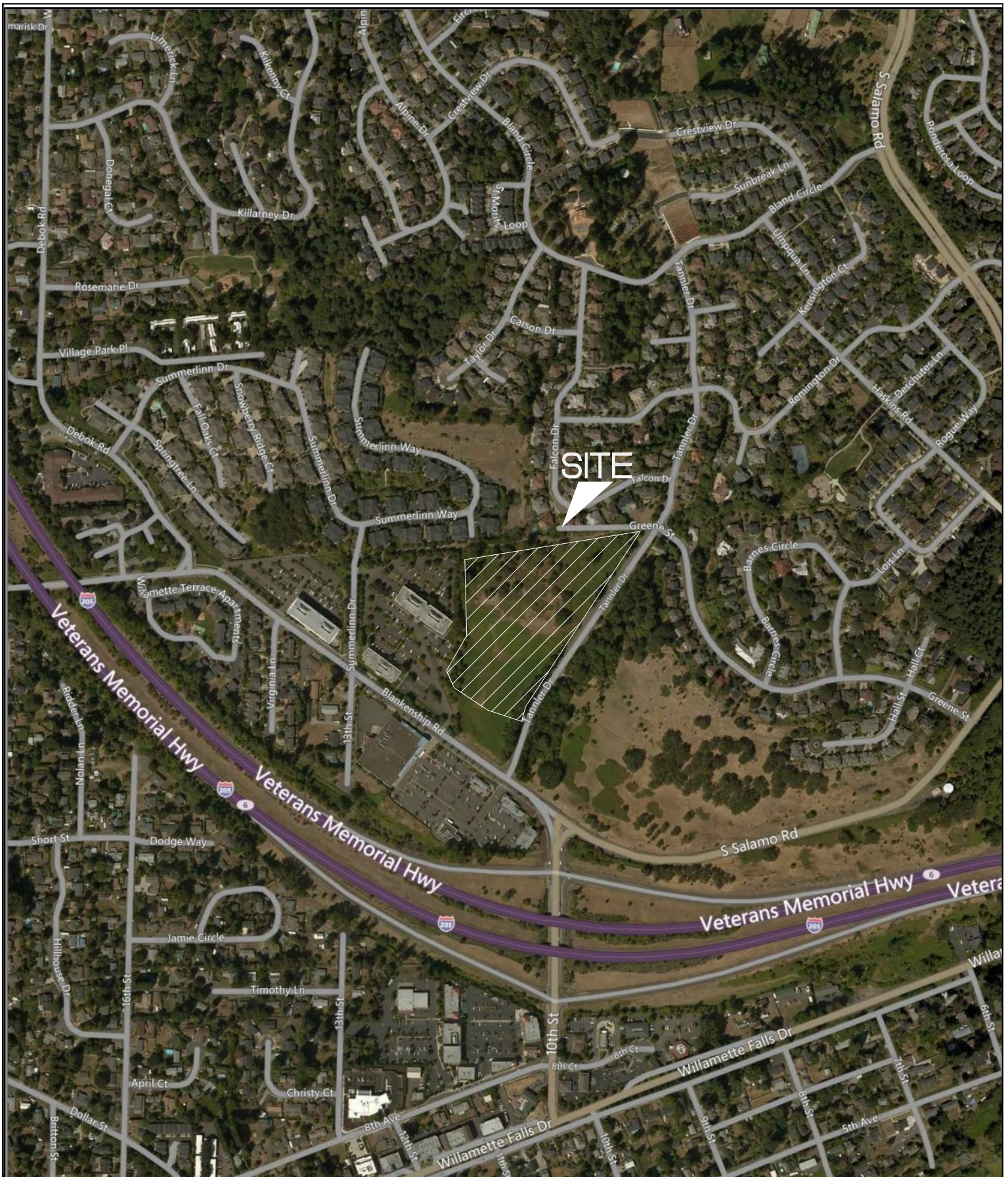
- Existing queues at the 10th Street/Blankenship Road/Salamo Road exceed available storage lengths, and are increased with site traffic.


Mitigation

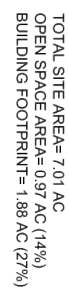
- Recommended mitigation at the Blankenship Road/Tannler Drive intersection includes striping for separate left and through/right lanes to reduce delays and increase capacity. This improvement will minimize the project impacts while keeping the intersection movements for the convenience of the Haggen Center and neighbors who use Tannler Drive.
- Recommended mitigation at the 10th Street/Blankenship Road/Salamo Road includes restriping and signal changes to provide a shared through/left lane in addition to the existing left-turn lane on the westbound Salamo approach.
- Pay a proportionate share, in the amount of \$24,010, towards the cost of improvements at the 10th Street/8th Avenue/8th Court intersection and the 8th Court extension.
- Enhance the pedestrian crossing on Blankenship Road west of the shared driveway to include striping, signing, and illumination as needed.

IX. APPENDICES

- A. Figures
- B. Traffic Count Summaries
- C. Transit Information
- D. Crash Data
- E. Background Growth Data
- F. In-Process Developments
- G. Signal Timing
- H. Capacity Calculations
- I. Queue Reports
- J. Scoping Material
- K. Signal and Turn Lane Warrants
- L. Lane Utilization Calculation
- M. Mitigation



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	Architecture - Interiors Planning - Engineering				JOB NO: 2130529.05	TANNER DRIVE MIXED-USE PROJECT WEST LINN, OREGON	
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					442		

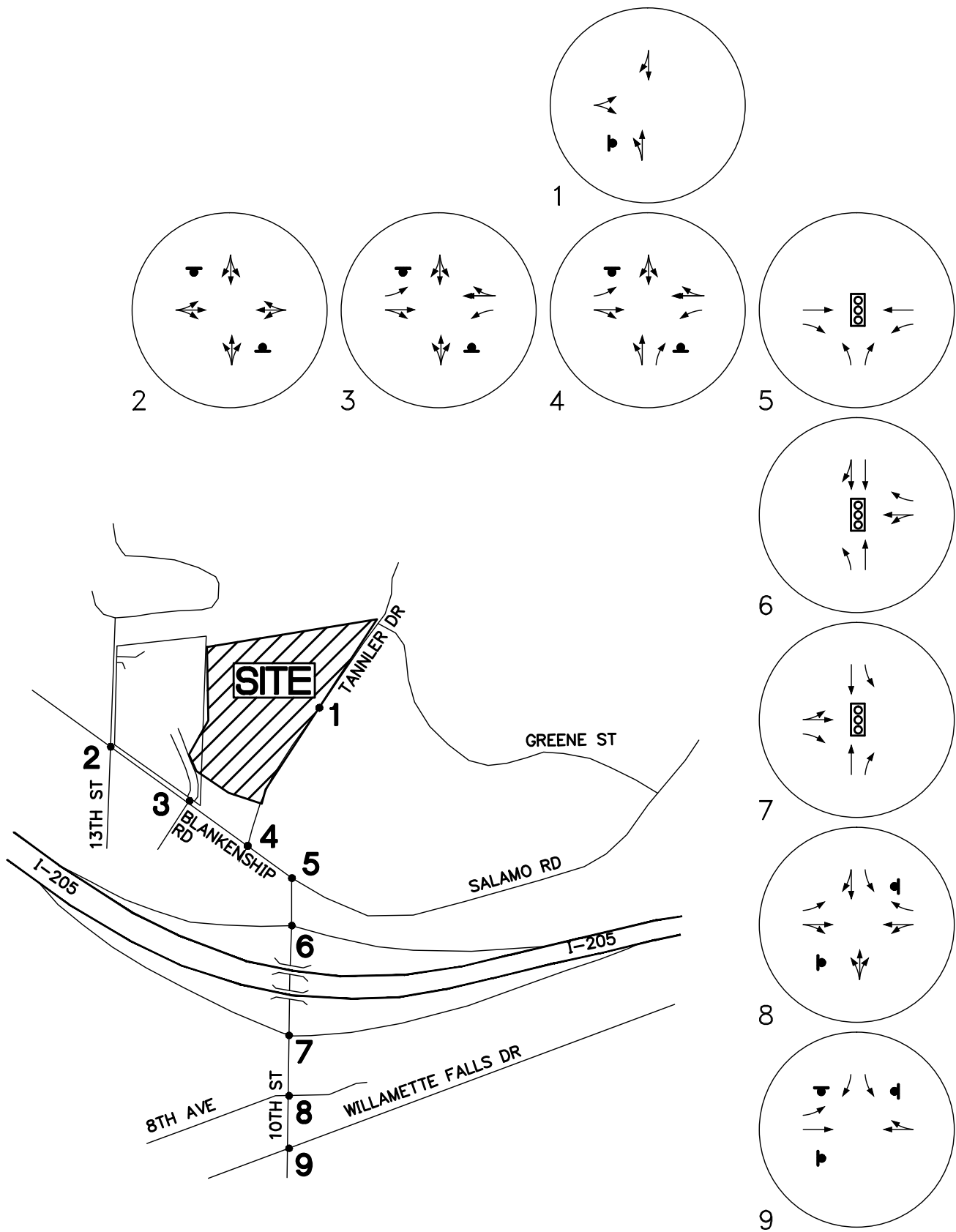


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EXISTING AND PLANNED
TRAFFIC CONTROL DEVICES
AND LANE CONFIGURATIONS

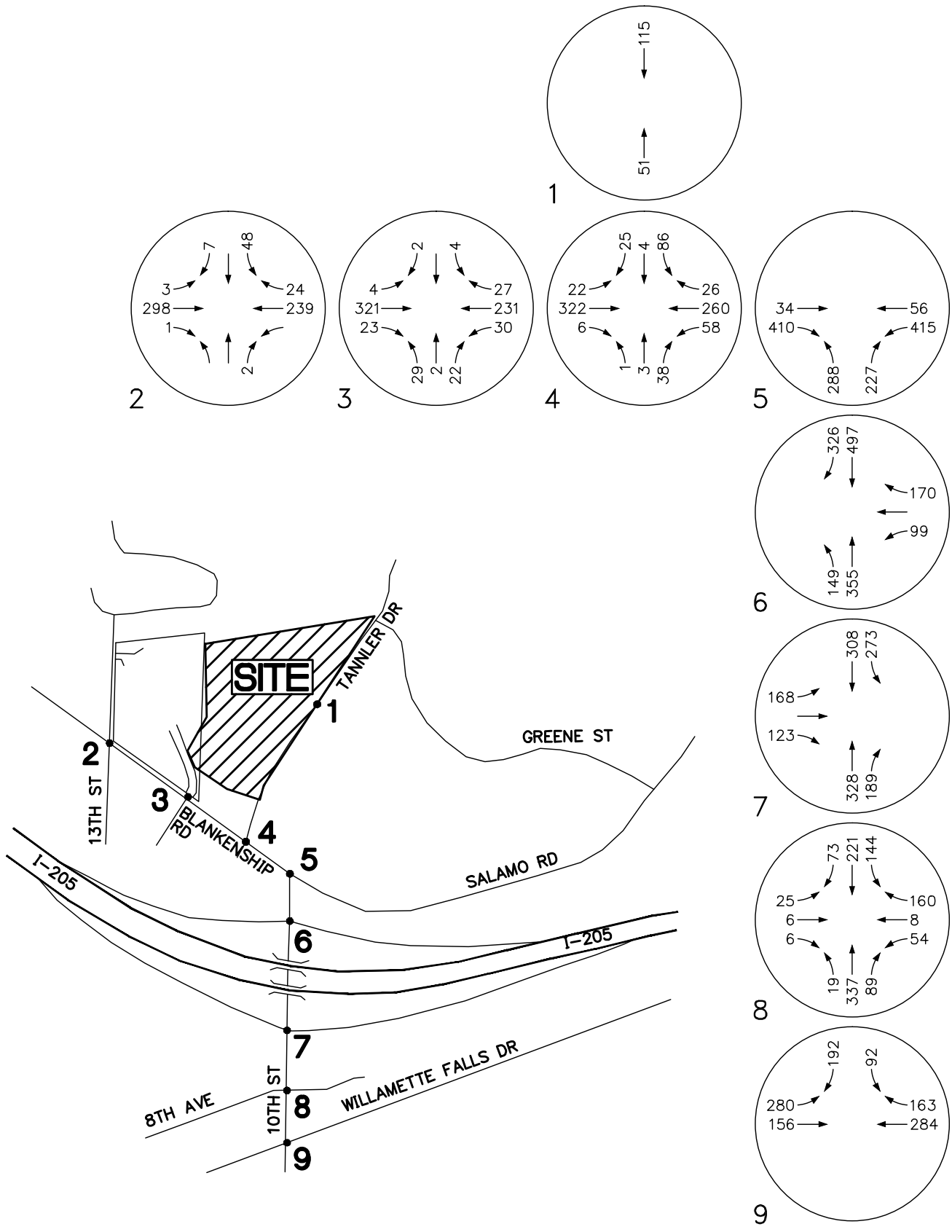
TANNER DRIVE MIXED-USE PROJECT
WEST LINN, OREGON

FIGURE

3

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2015 EXISTING TRAFFIC
VOLUMES - AM PEAK HOUR

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WEST LINN, OREGON

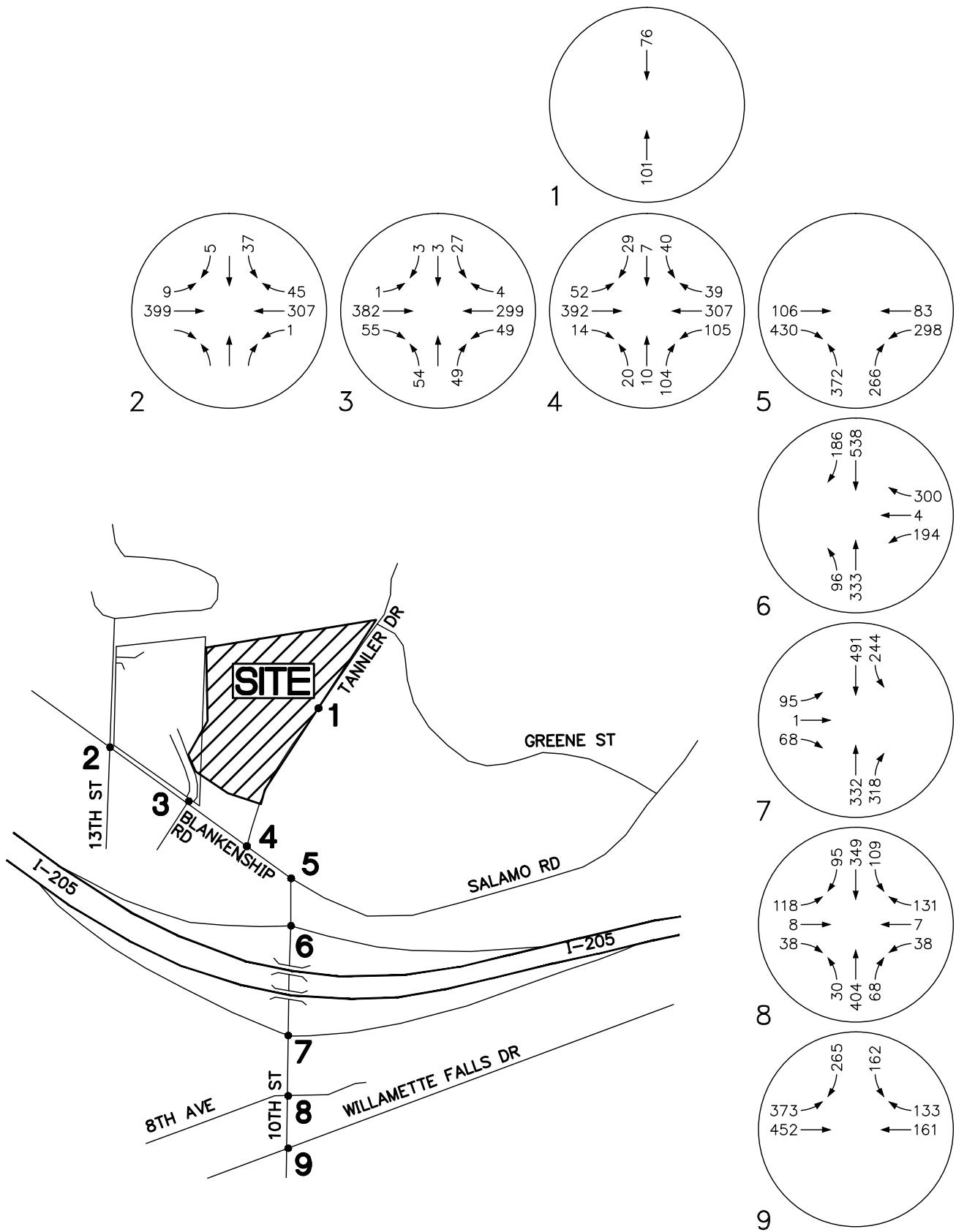
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2015 EXISTING TRAFFIC
VOLUMES - PM PEAK HOUR

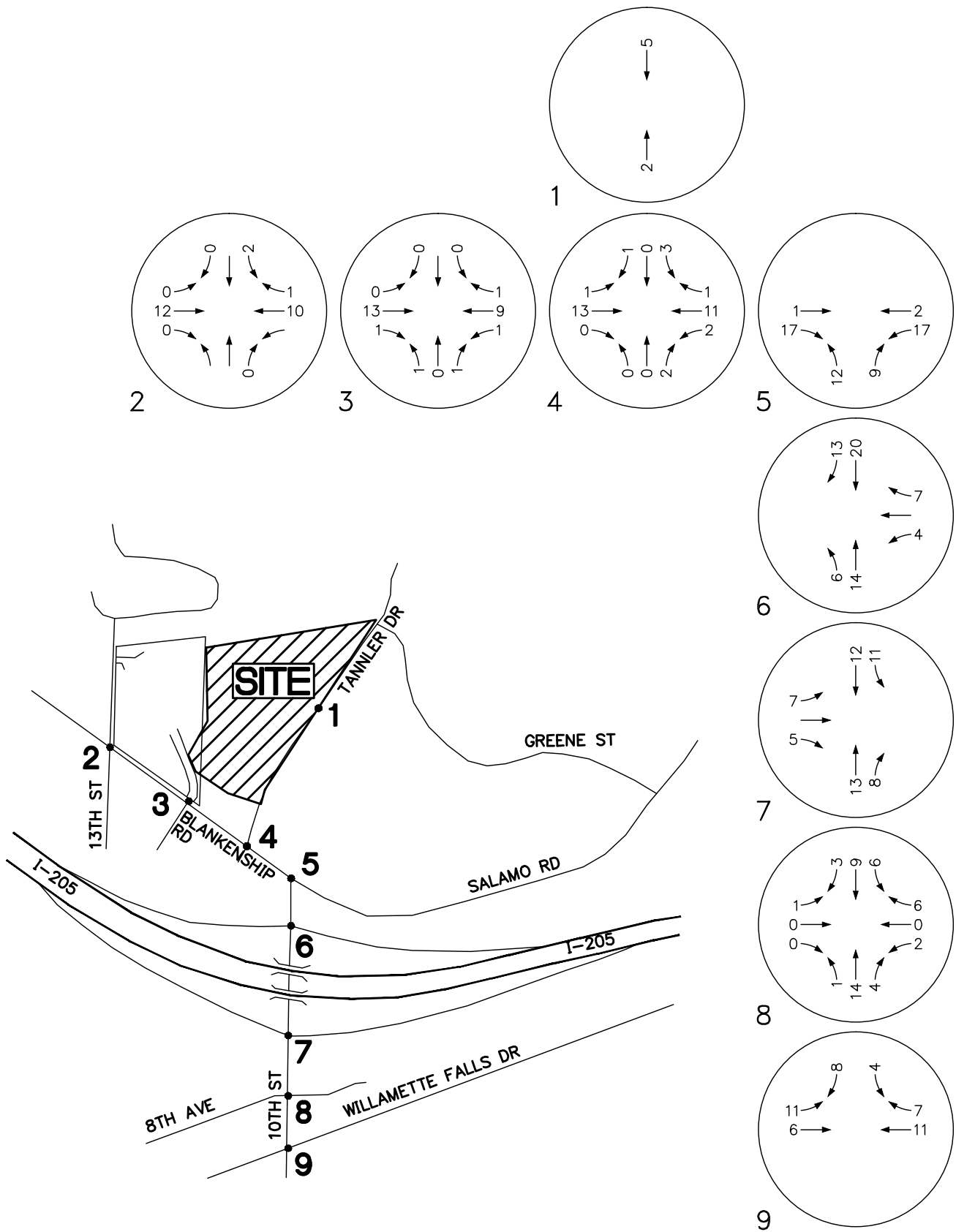
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FIGURE

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BACKGROUND GROWTH -
AM PEAK HOUR
2-YEAR AT 2% PER YEAR

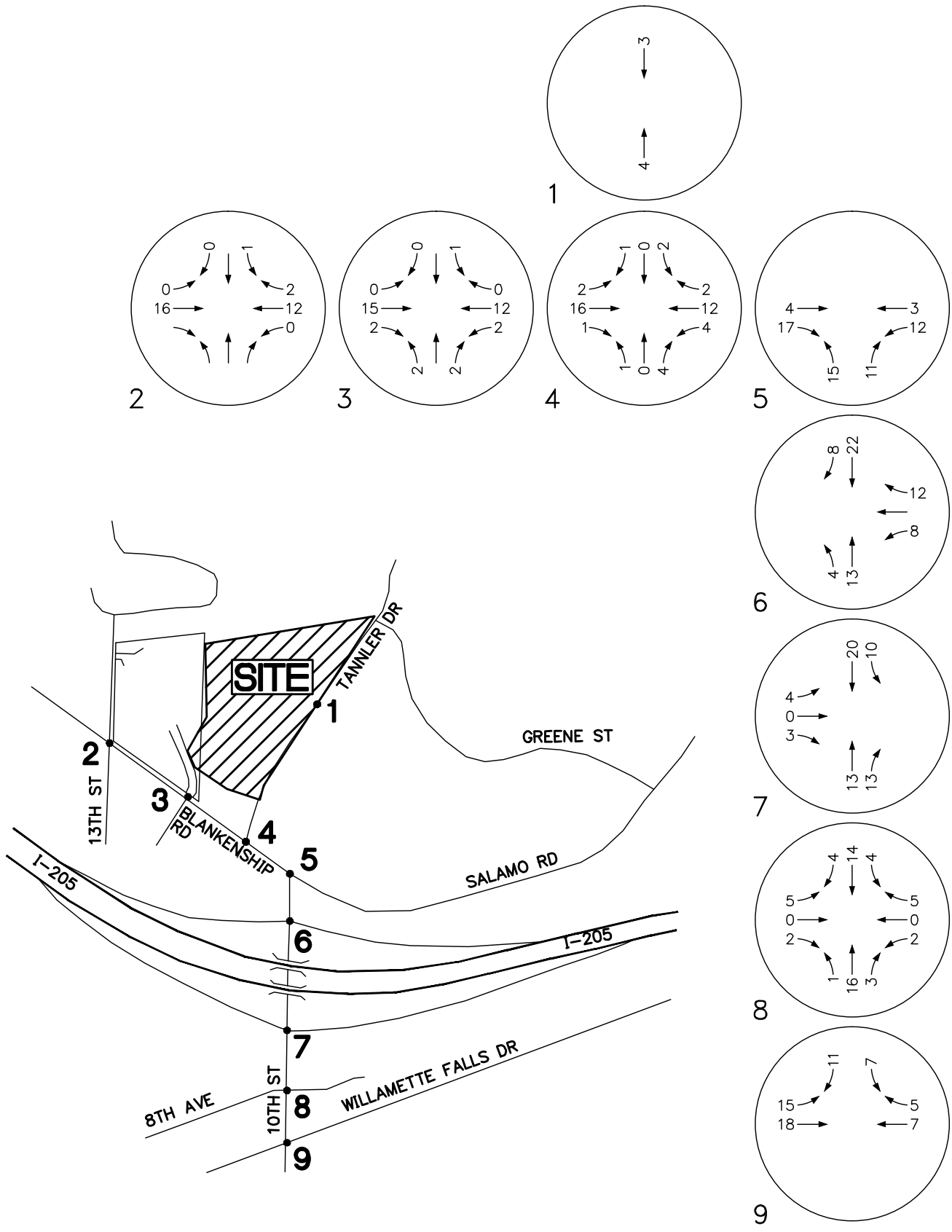
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WEST LINN, OREGON

FIGURE

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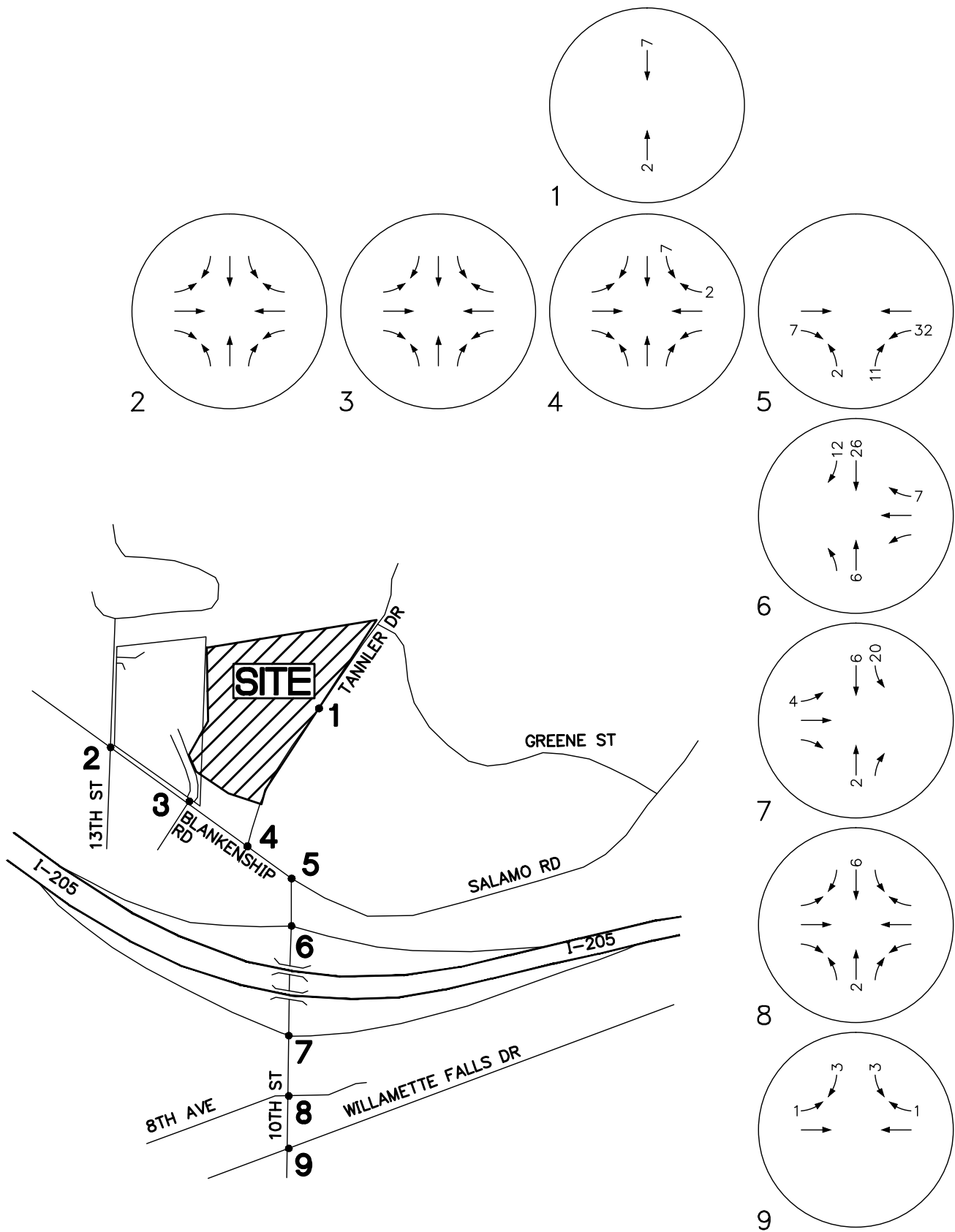
BACKGROUND GROWTH -
PM PEAK HOUR
2-YEAR AT 2% PER YEAR

TANNER DRIVE MIXED-USE PROJECT
WEST LINN, OREGON

FIGURE
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2017 IN-PROCESS TRIPS -
AM PEAK HOUR

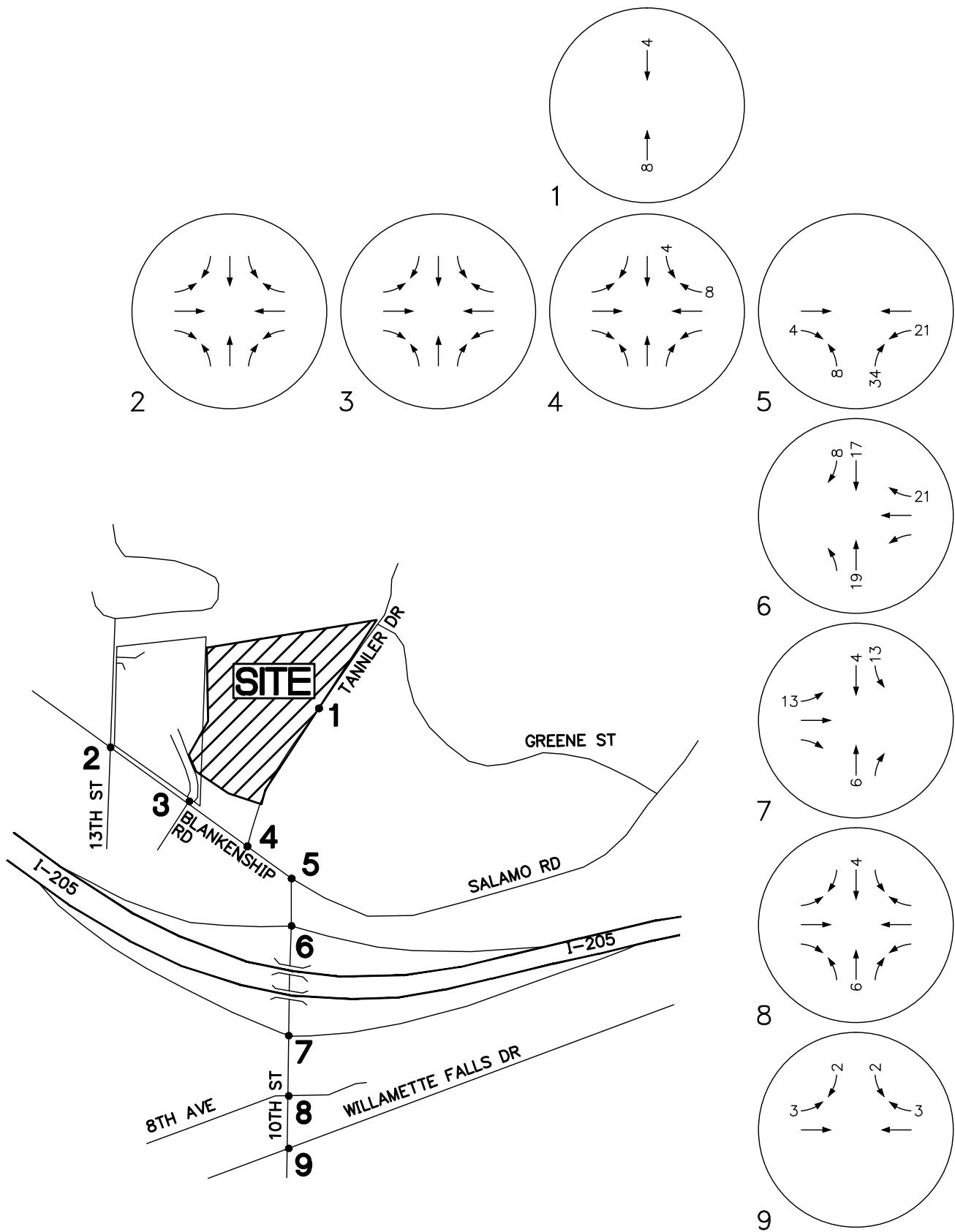
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FIGURE

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2017 IN-PROCESS TRIPS -
PM PEAK HOUR

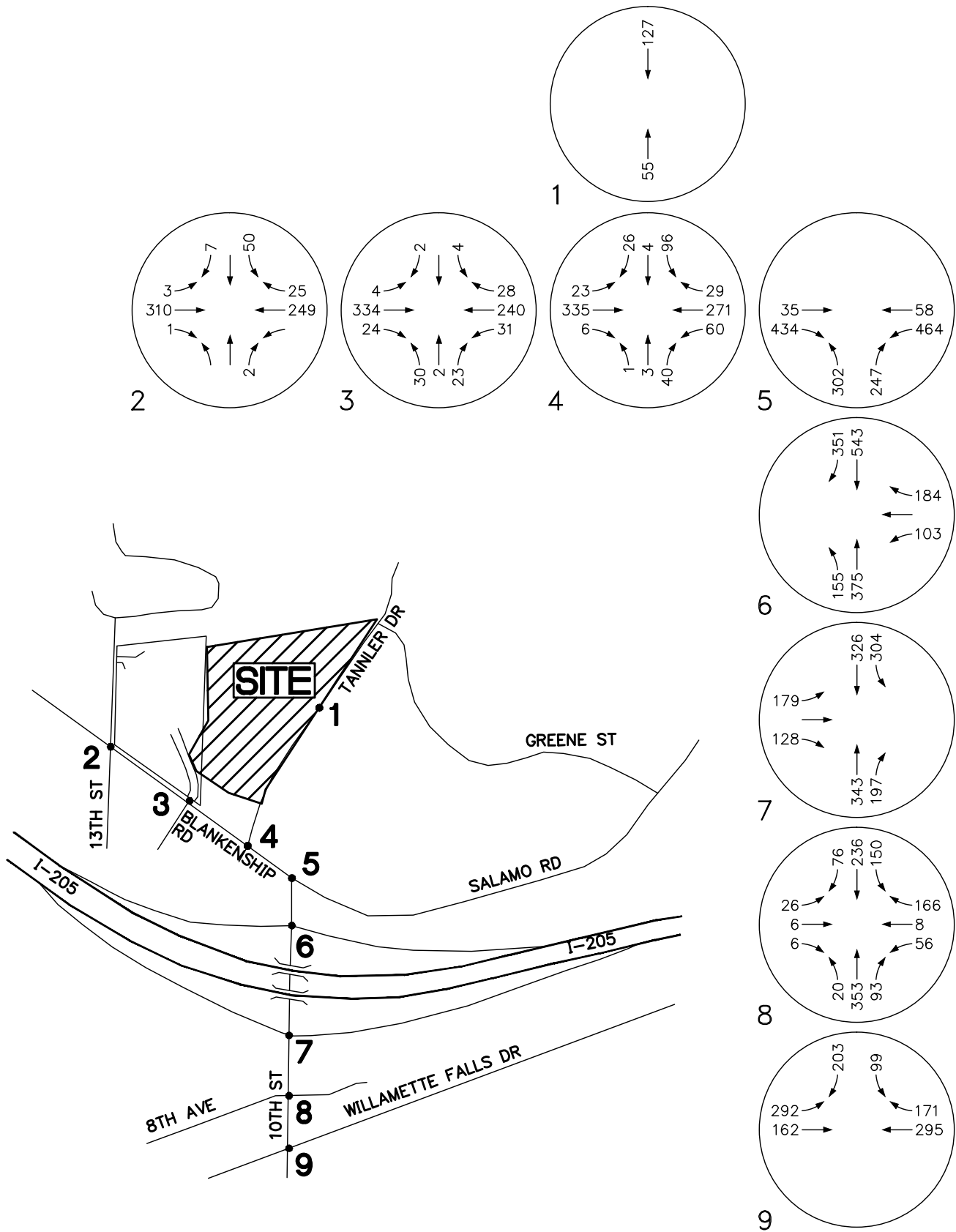
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WEST LINN, OREGON

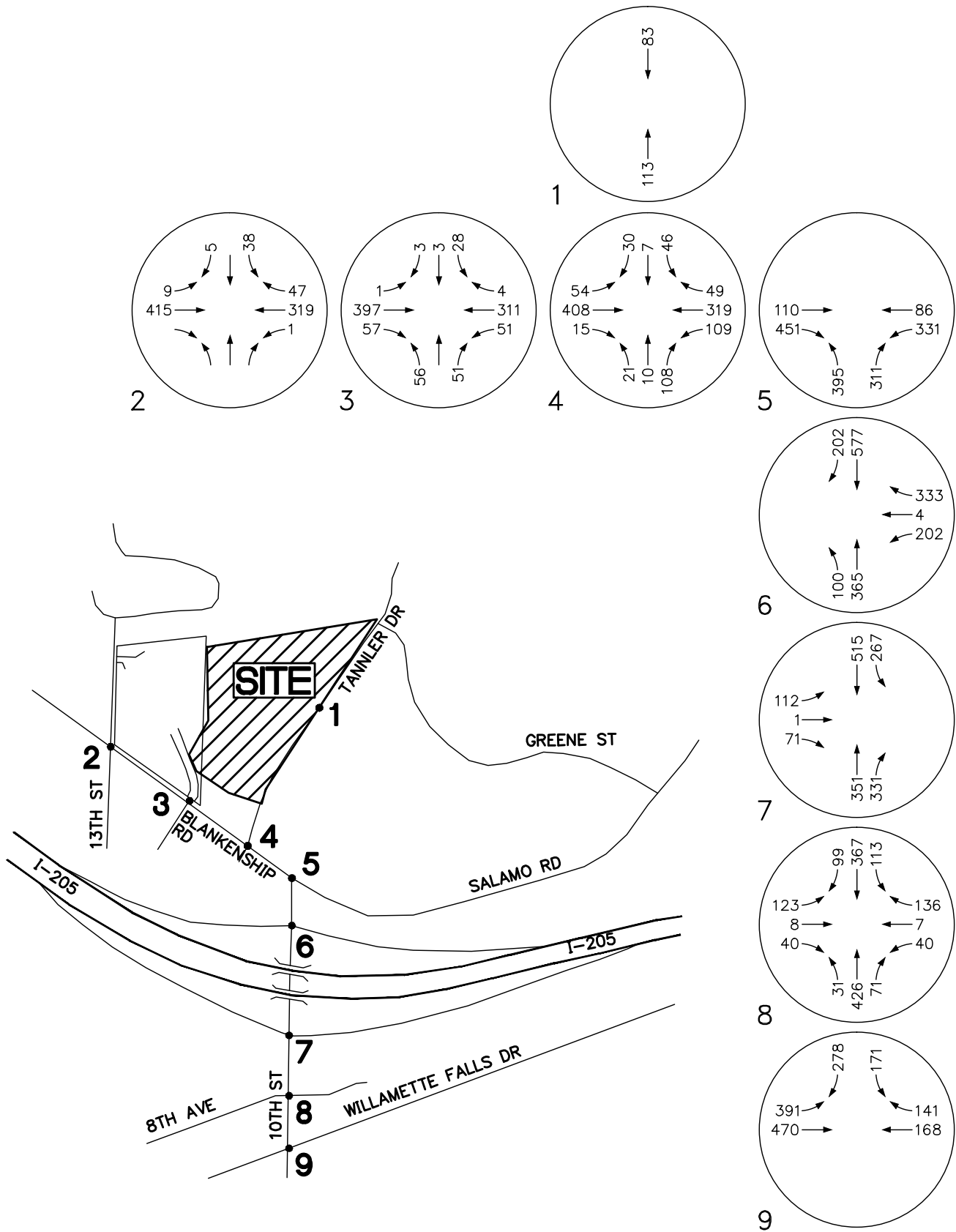
FIGURE

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2017 PRE-DEVELOPMENT
VOLUMES - PM PEAK HOUR

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WEST LINN, OREGON

FIGURE

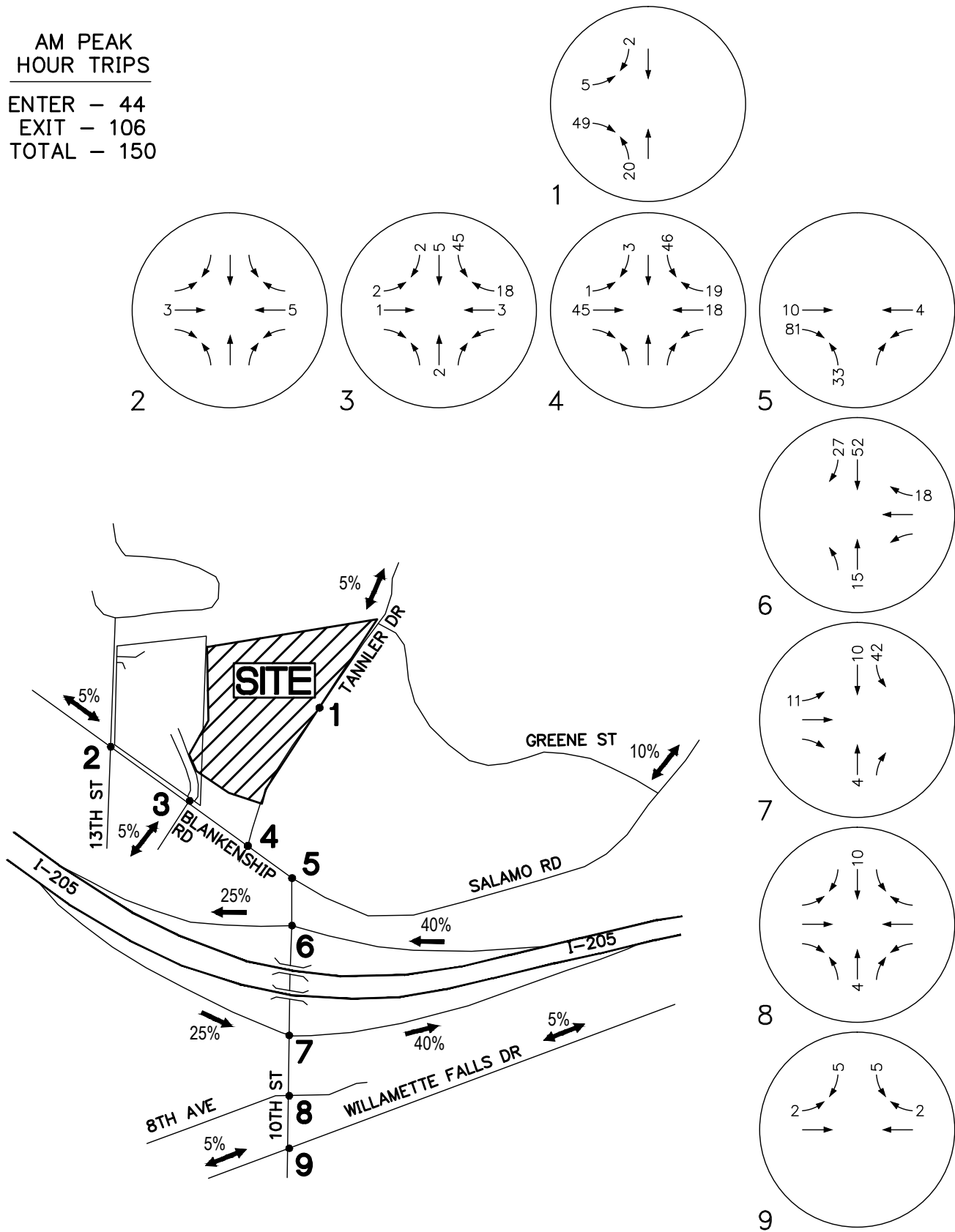
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AM PEAK
HOUR TRIPS

ENTER - 44
EXIT - 106
TOTAL - 150



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TRIP ASSIGNMENT -
AM PEAK HOUR

TANNER DRIVE MIXED-USE PROJECT
WEST LINN, OREGON

FIGURE

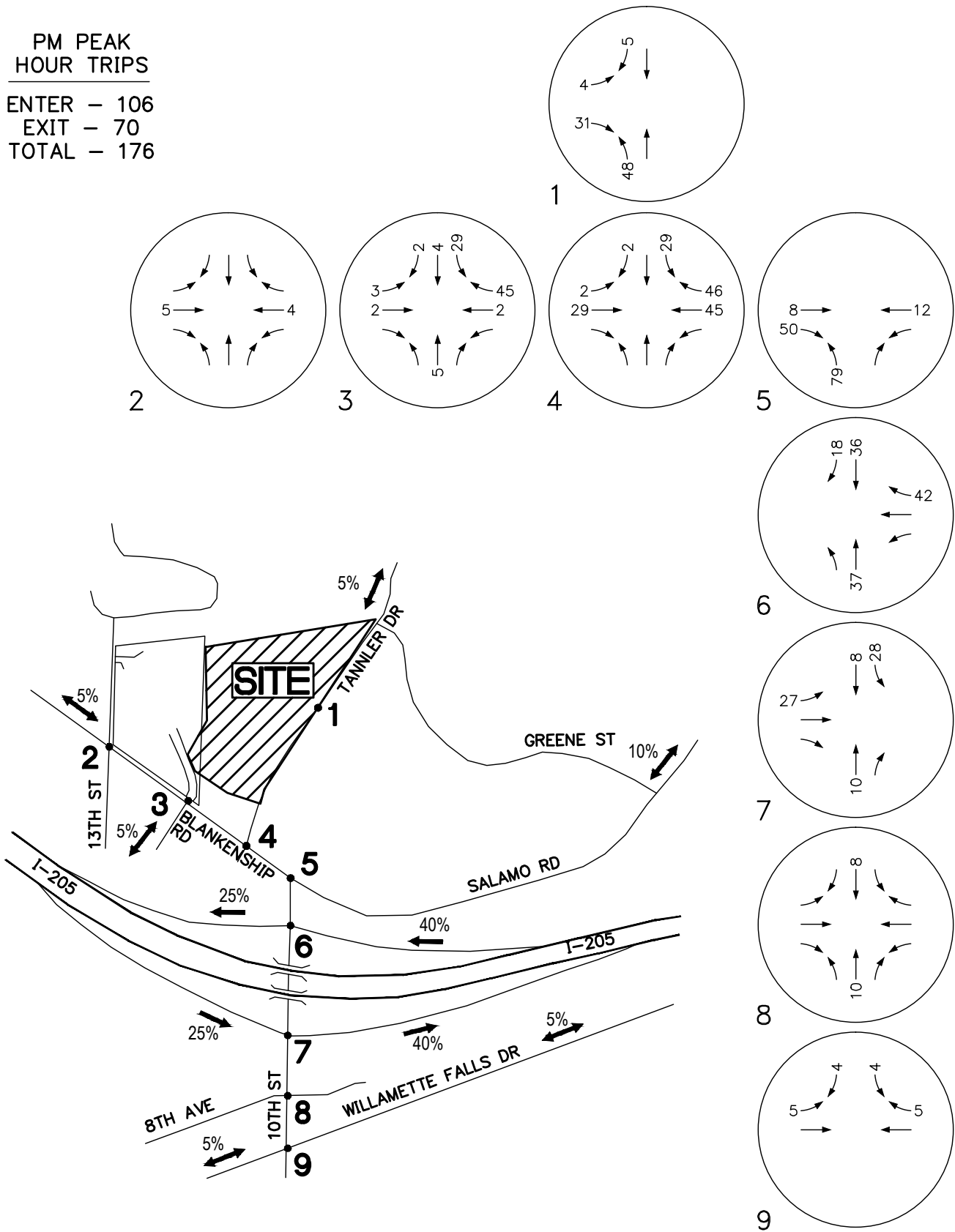
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PM PEAK
HOUR TRIPS

ENTER - 106
EXIT - 70
TOTAL - 176



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TRIP ASSIGNMENT -
PM PEAK HOUR

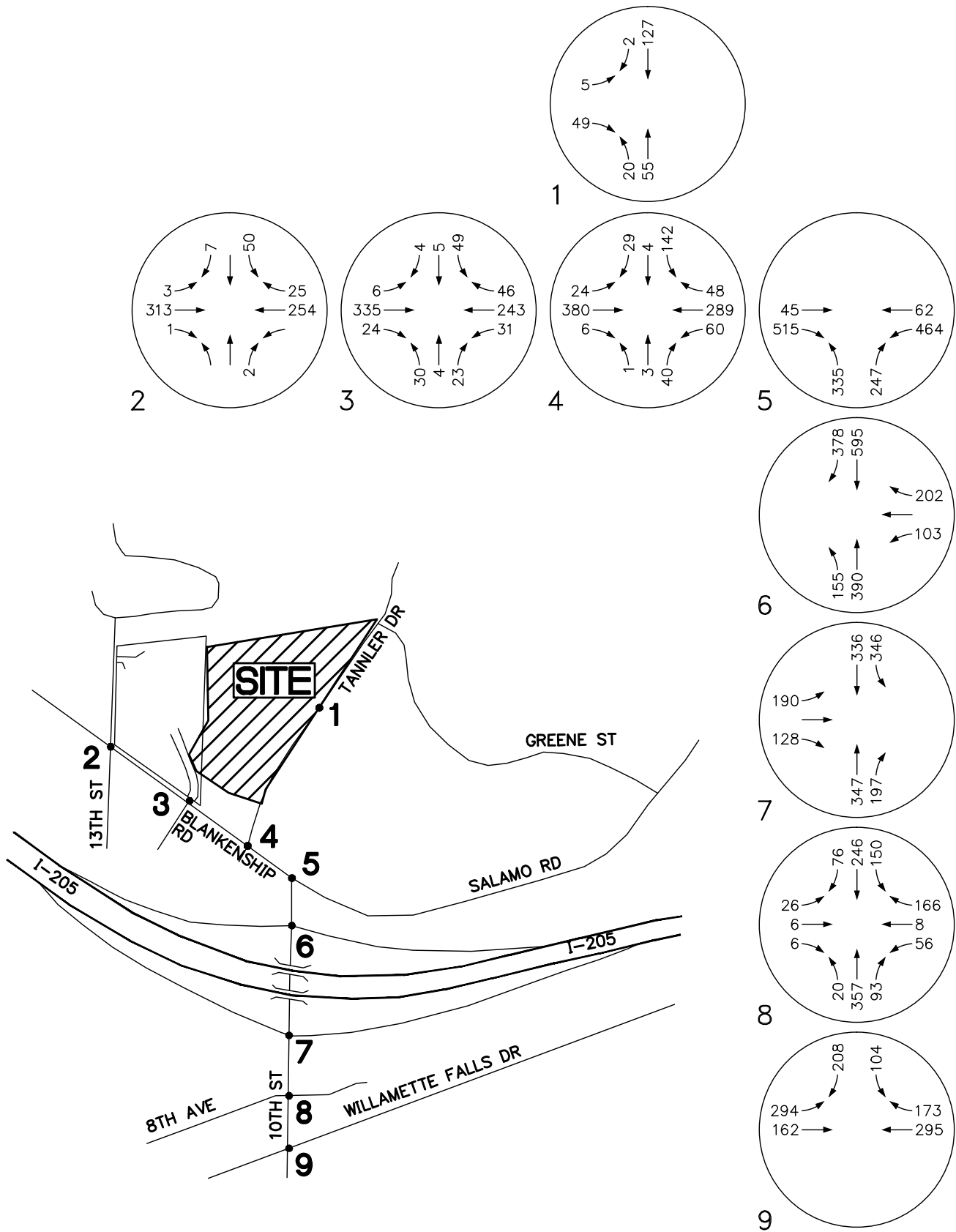
TANNER DRIVE MIXED-USE PROJECT
WEST LINN, OREGON

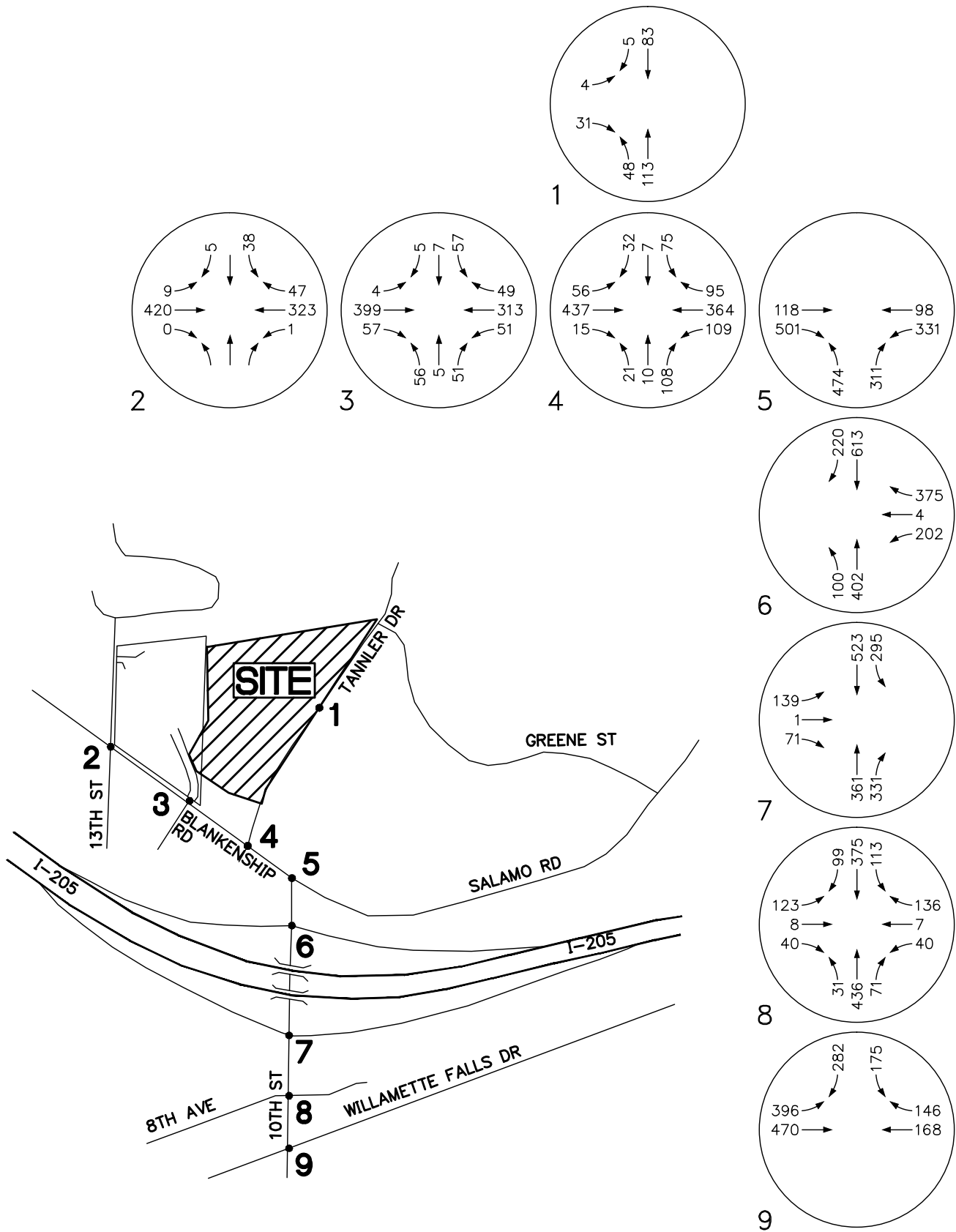
FIGURE

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2017 POST-DEVELOPMENT
VOLUMES - PM PEAK HOUR

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RECOMMENDED MITIGATION

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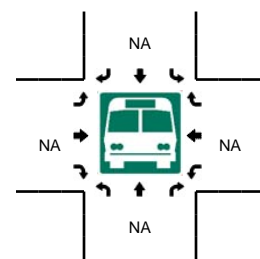
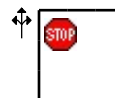
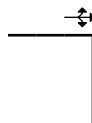
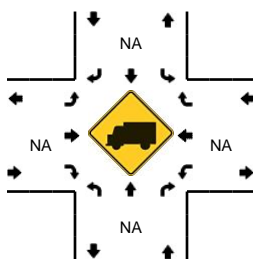
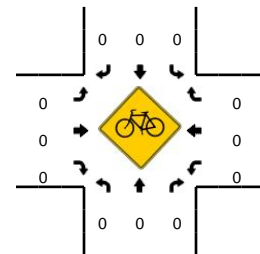
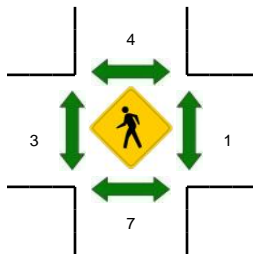
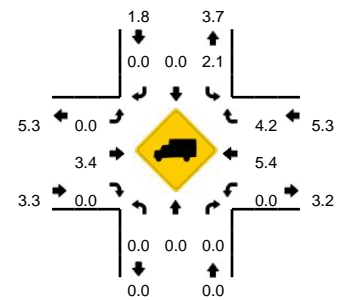
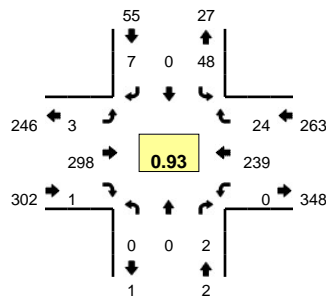
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LOCATION: 13th St -- Blankenship Rd
CITY/STATE: West Linn, OR

QC JOB #: 13358515
DATE: Tue, Apr 14 2015

Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

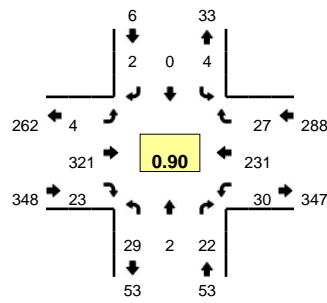


5-Min Count Period Beginning At	13th St (Northbound)				13th St (Southbound)				Blankenship Rd (Eastbound)				Blankenship Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	4	0	1	0	0	31	0	0	0	11	0	0	47	
7:05 AM	0	0	0	0	1	0	0	0	0	20	0	0	0	8	1	0	30	
7:10 AM	0	0	1	0	3	0	1	0	0	19	1	0	0	15	0	0	40	
7:15 AM	0	0	0	0	6	0	0	0	0	13	0	0	0	11	2	0	32	
7:20 AM	0	0	0	0	7	0	0	0	0	23	0	0	0	15	0	0	45	
7:25 AM	0	0	0	0	3	0	1	0	0	24	0	0	0	20	1	0	49	
7:30 AM	0	0	0	0	3	0	0	0	0	25	0	0	0	19	1	0	48	
7:35 AM	0	0	0	0	5	0	1	0	0	34	0	0	0	18	2	0	60	
7:40 AM	0	0	0	0	3	0	0	0	0	22	0	0	0	19	2	0	46	
7:45 AM	0	0	1	0	4	0	0	0	1	36	0	0	0	20	0	0	62	
7:50 AM	0	0	0	0	2	0	0	0	0	18	0	0	0	21	2	0	43	
7:55 AM	0	0	0	0	3	0	0	0	0	18	0	0	0	32	6	0	59	561
8:00 AM	0	0	0	0	5	0	0	0	0	26	0	0	0	24	2	0	57	571
8:05 AM	0	0	0	0	3	0	1	0	0	24	0	0	0	16	0	0	44	585
8:10 AM	0	0	0	0	2	0	1	0	1	26	1	0	0	21	4	0	56	601
8:15 AM	0	0	1	0	8	0	3	0	1	22	0	0	0	14	4	0	53	622
8:20 AM	0	0	0	0	5	0	1	0	0	13	0	0	0	15	2	0	36	613
8:25 AM	0	0	0	0	0	0	1	0	0	20	0	0	0	18	2	0	41	605
8:30 AM	0	0	0	0	4	0	0	0	0	20	0	0	0	18	3	0	45	602
8:35 AM	0	0	0	0	2	0	0	0	0	28	0	0	0	15	5	0	50	592
8:40 AM	0	0	0	0	3	0	0	0	0	22	0	0	0	18	1	0	44	590
8:45 AM	0	0	0	0	3	0	0	0	0	25	0	0	0	16	1	0	45	573
8:50 AM	0	0	0	0	2	0	0	0	0	28	0	0	0	16	0	0	46	576
8:55 AM	0	0	1	0	4	0	0	0	1	17	0	0	0	13	5	0	41	558
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	0	4	0	48	0	4	0	4	368	0	0	0	228	16	0	672	
Heavy Trucks	0	0	0	0	0	0	0	0	0	20	0	0	0	16	4	0	40	
Pedestrians		8				8				0				0			16	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

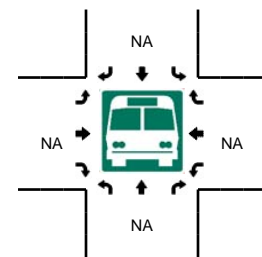
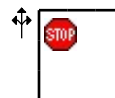
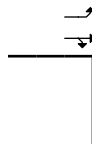
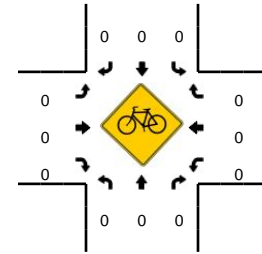
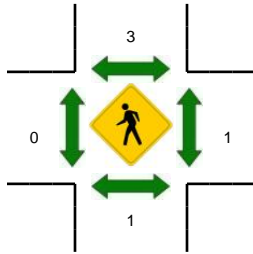
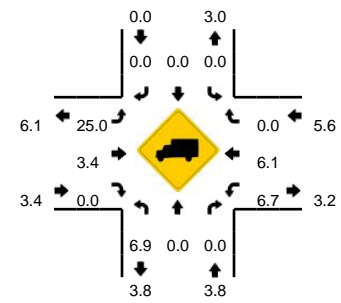
Comments:

LOCATION: Site Access/Haggen's Access -- Blankenship Rd
CITY/STATE: West Linn, OR

QC JOB #: 13358513
DATE: Tue, Apr 14 2015



Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:35 AM -- 7:50 AM



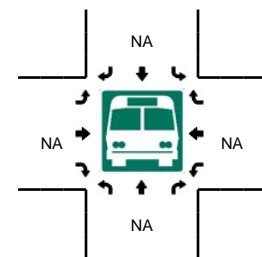
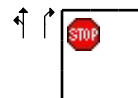
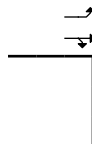
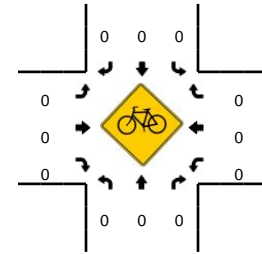
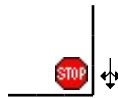
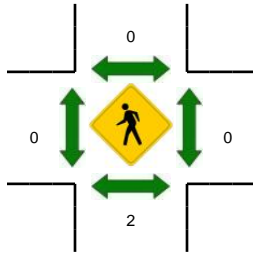
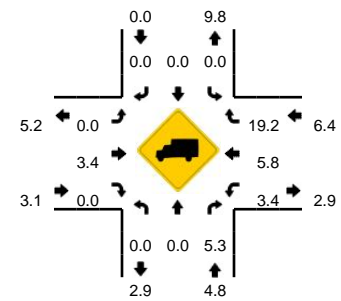
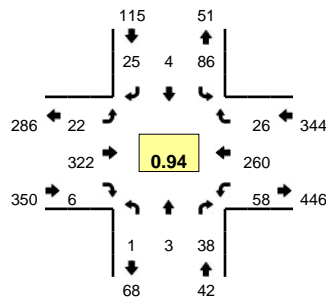
5-Min Count Period Beginning At	Site Access/Haggen's Access (Northbound)				Site Access/Haggen's Access (Southbound)				Blankenship Rd (Eastbound)				Blankenship Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	0	0	0	0	0	0	0	28	5	0	1	9	1	0	46	
7:05 AM	1	2	1	0	0	0	0	0	0	21	1	0	0	8	5	0	39	
7:10 AM	3	1	0	0	1	0	0	0	0	22	2	0	3	12	0	0	44	
7:15 AM	4	1	0	0	0	0	1	0	0	15	2	0	1	8	1	0	33	
7:20 AM	2	0	1	0	0	0	0	0	0	29	2	0	3	13	0	0	50	
7:25 AM	0	0	1	0	1	0	0	0	0	23	1	0	2	22	2	0	52	
7:30 AM	1	0	2	0	0	0	0	0	0	28	1	0	2	17	0	0	51	
7:35 AM	2	0	2	0	1	0	1	0	0	35	5	0	4	18	3	0	71	
7:40 AM	5	0	3	0	0	0	0	0	1	24	0	0	4	16	2	0	55	
7:45 AM	2	1	4	0	0	0	0	0	1	35	3	0	4	16	0	0	66	
7:50 AM	2	0	2	0	0	0	0	0	0	19	1	0	3	22	3	0	52	
7:55 AM	2	0	0	0	0	0	0	0	0	16	3	0	0	36	6	0	63	622
8:00 AM	3	1	2	0	0	0	0	0	0	29	3	0	2	23	2	0	65	641
8:05 AM	2	0	3	0	1	0	1	0	1	25	1	0	0	15	4	0	53	655
8:10 AM	6	0	2	0	0	0	0	0	0	27	2	0	3	18	3	0	61	672
8:15 AM	2	0	0	0	1	0	0	0	1	31	1	0	3	15	2	0	56	695
8:20 AM	2	0	1	0	1	0	0	0	0	16	1	0	2	15	2	0	40	685
8:25 AM	0	1	2	0	0	0	0	0	0	22	0	0	1	21	3	0	50	683
8:30 AM	1	0	1	0	0	0	0	0	0	20	4	0	2	20	4	0	52	684
8:35 AM	1	1	1	0	1	0	0	0	0	27	3	0	4	19	4	0	61	674
8:40 AM	2	0	2	0	0	0	0	0	0	19	2	0	4	17	3	0	49	668
8:45 AM	2	0	3	0	2	0	0	0	0	28	4	0	1	15	0	0	55	657
8:50 AM	1	0	1	0	0	0	0	0	0	27	2	0	2	19	6	0	58	663
8:55 AM	0	0	2	0	0	0	0	0	0	19	2	0	4	17	5	0	49	649
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	36	4	36	0	4	0	4	0	8	376	32	0	48	200	20	0	768	
Heavy Trucks	0	0	0	0	0	0	0	0	4	16	0	0	0	24	0	0	44	
Pedestrians		4				8				0				0			12	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Tannler Dr -- Blankenship Rd
CITY/STATE: West Linn, OR

QC JOB #: 13358511
DATE: Tue, Apr 14 2015

Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:50 AM -- 8:05 AM



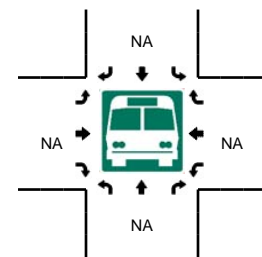
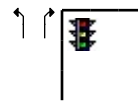
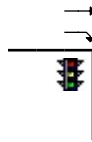
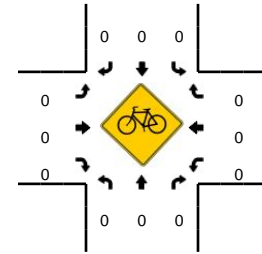
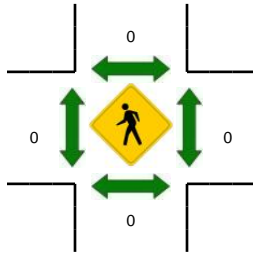
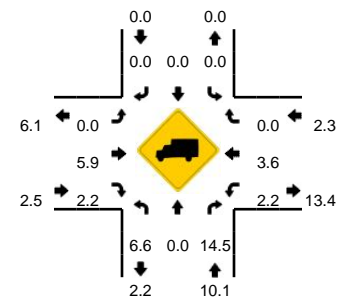
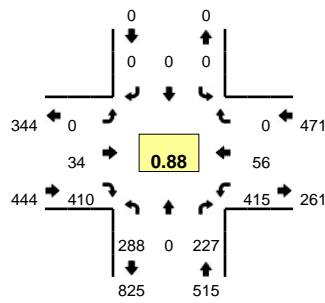
5-Min Count Period Beginning At	Tannler Dr (Northbound)				Tannler Dr (Southbound)				Blankenship Rd (Eastbound)				Blankenship Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	1	3	0	4	0	0	0	0	27	0	0	3	9	3	0	51	
7:05 AM	0	0	1	0	7	0	1	0	1	22	0	0	1	12	0	0	45	
7:10 AM	0	0	2	0	4	0	2	0	1	22	0	0	0	12	0	0	43	
7:15 AM	1	0	0	0	7	0	0	0	0	15	0	0	3	12	1	0	39	
7:20 AM	0	1	4	0	3	0	1	0	1	28	0	0	5	13	1	0	57	
7:25 AM	0	0	1	0	6	0	5	0	2	27	0	0	5	22	1	0	69	
7:30 AM	0	1	3	0	7	0	0	0	2	28	0	0	7	20	1	0	69	
7:35 AM	0	0	2	0	9	0	3	0	2	36	0	0	1	24	3	0	80	
7:40 AM	0	0	5	0	13	1	4	0	2	25	0	0	4	18	1	0	73	
7:45 AM	0	0	3	0	3	0	1	0	1	37	1	0	3	18	3	0	70	
7:50 AM	0	1	3	0	7	1	2	0	0	19	2	0	7	26	5	0	73	
7:55 AM	0	0	3	0	7	0	1	0	3	12	1	0	9	40	1	0	77	746
8:00 AM	0	0	6	0	5	1	2	0	2	28	0	0	6	24	3	0	77	772
8:05 AM	1	0	3	0	8	1	4	0	2	25	2	0	3	15	3	0	67	794
8:10 AM	0	0	2	0	9	0	0	0	3	27	0	0	4	21	2	0	68	819
8:15 AM	0	0	3	0	9	0	2	0	2	30	0	0	4	19	2	0	71	851
8:20 AM	0	0	4	0	2	0	1	0	0	17	1	0	4	18	3	0	50	844
8:25 AM	1	0	4	0	7	0	1	0	3	20	0	0	10	23	1	0	70	845
8:30 AM	0	0	6	0	3	1	0	0	2	19	1	0	5	27	2	0	66	842
8:35 AM	0	0	5	0	4	0	3	0	2	24	2	0	7	27	6	0	80	842
8:40 AM	0	0	6	0	6	0	2	0	2	20	0	0	6	18	3	0	63	832
8:45 AM	0	0	5	0	8	0	4	0	3	30	0	0	9	13	1	0	73	835
8:50 AM	0	0	9	0	9	0	4	0	1	27	0	0	7	23	3	0	83	845
8:55 AM	1	0	4	0	14	0	3	0	0	20	0	0	7	21	2	0	72	840
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	4	48	0	76	8	20	0	20	236	12	0	88	360	36	0	908	
Heavy Trucks	0	0	4		0	0	0		0	12	0		4	12	8		40	
Pedestrians	4				0				0				0				4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 10th St -- Salamo Rd
CITY/STATE: West Linn, OR

QC JOB #: 13358509
DATE: Tue, Apr 14 2015

Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:35 AM -- 7:50 AM



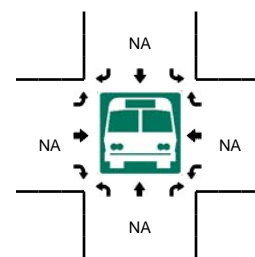
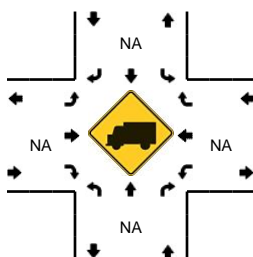
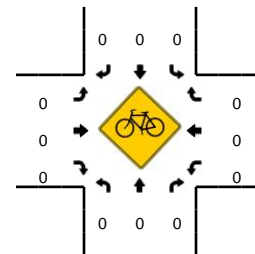
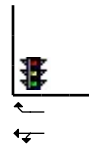
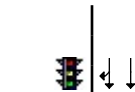
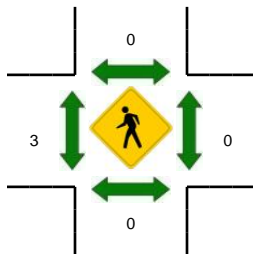
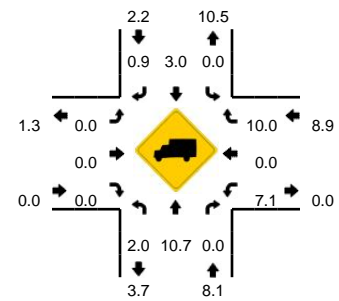
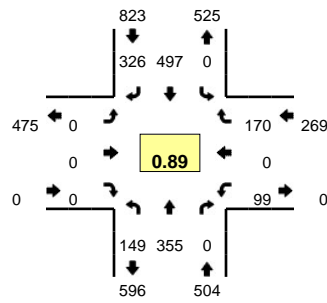
5-Min Count Period Beginning At	10th St (Northbound)				10th St (Southbound)				Salamo Rd (Eastbound)				Salamo Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	14	0	16	0	0	0	0	0	0	2	30	0	26	1	0	0	89	
7:05 AM	15	0	9	0	0	0	0	0	0	1	33	0	24	2	0	0	84	
7:10 AM	8	0	10	0	0	0	0	0	0	1	26	0	19	3	0	0	67	
7:15 AM	9	0	9	0	0	0	0	0	0	3	19	0	28	7	0	0	75	
7:20 AM	16	0	16	0	0	0	0	0	0	2	32	0	24	4	0	0	94	
7:25 AM	27	0	14	0	0	0	0	0	0	1	32	0	28	3	0	0	105	
7:30 AM	19	0	12	0	0	0	0	0	0	1	36	0	37	6	0	0	111	
7:35 AM	26	0	20	0	0	0	0	0	0	4	47	0	42	2	0	0	141	
7:40 AM	21	0	19	0	0	0	0	0	0	2	39	0	44	2	0	0	127	
7:45 AM	19	0	25	0	0	0	0	0	0	4	39	0	44	6	0	0	137	
7:50 AM	26	0	27	0	0	0	0	0	0	5	26	0	29	13	0	0	126	
7:55 AM	39	0	21	0	0	0	0	0	0	0	17	0	37	9	0	0	123	1279
8:00 AM	31	0	22	0	0	0	0	0	0	4	37	0	28	2	0	0	124	1314
8:05 AM	21	0	15	0	0	0	0	0	0	6	32	0	40	2	0	0	116	1346
8:10 AM	24	0	15	0	0	0	0	0	0	3	32	0	32	4	0	0	110	1389
8:15 AM	19	0	21	0	0	0	0	0	0	2	41	0	30	3	0	0	116	1430
8:20 AM	24	0	21	0	0	0	0	0	0	1	22	0	31	3	0	0	102	1438
8:25 AM	28	0	11	0	0	0	0	0	0	4	29	0	33	7	0	0	112	1445
8:30 AM	28	0	17	0	0	0	0	0	0	0	26	0	27	4	0	0	102	1436
8:35 AM	32	0	22	0	0	0	0	0	0	3	32	0	36	9	0	0	134	1429
8:40 AM	24	0	19	0	0	0	0	0	0	4	22	0	42	1	0	0	112	1414
8:45 AM	17	0	10	0	0	0	0	0	0	5	40	0	37	5	0	0	114	1391
8:50 AM	32	0	23	0	0	0	0	0	0	6	36	0	18	4	0	0	119	1384
8:55 AM	22	0	15	0	0	0	0	0	0	4	37	0	26	6	0	0	110	1371
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	264	0	256	0	0	0	0	0	0	40	500	0	520	40	0	0	1620	
Heavy Trucks	32	0	60	0	0	0	0	0	0	0	20	0	12	0	0	0	124	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: 10th St -- I-205 SB Ramps
CITY/STATE: West Linn, OR

QC JOB #: 13358507
DATE: Tue, Apr 14 2015

Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:35 AM -- 7:50 AM



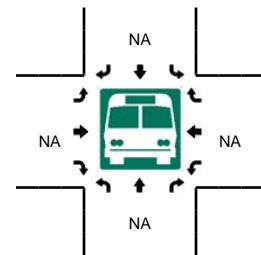
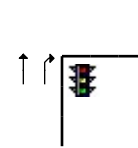
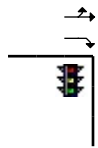
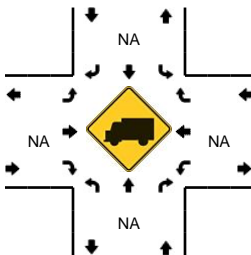
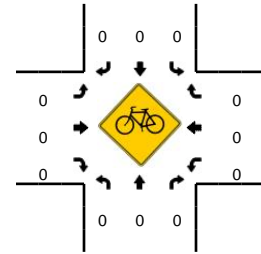
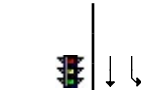
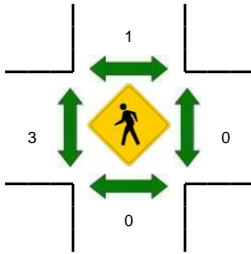
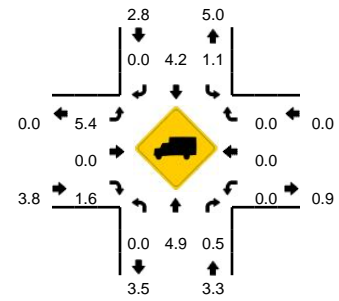
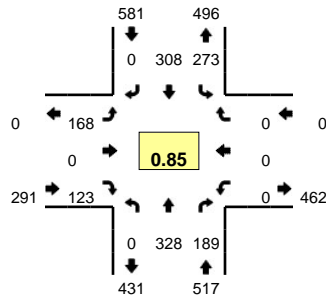
5-Min Count Period Beginning At	10th St (Northbound)				10th St (Southbound)				I-205 SB Ramps (Eastbound)				I-205 SB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	8	20	0	0	0	26	25	0	0	0	0	0	8	0	9	0	96	
7:05 AM	11	18	0	0	0	35	26	0	0	0	0	0	7	0	6	0	103	
7:10 AM	11	15	0	0	0	27	18	0	0	0	0	0	15	0	3	0	89	
7:15 AM	19	17	0	0	0	27	22	0	0	0	0	0	9	0	0	0	94	
7:20 AM	8	22	0	0	0	28	27	0	0	0	0	0	9	0	10	0	104	
7:25 AM	16	29	0	0	0	46	15	0	0	0	0	0	6	0	11	0	123	
7:30 AM	9	16	0	0	0	40	28	0	0	0	0	0	7	0	17	0	117	
7:35 AM	11	34	0	0	0	56	36	0	0	0	0	0	9	0	11	0	157	
7:40 AM	21	30	0	0	0	51	31	0	0	0	0	0	8	0	11	0	152	
7:45 AM	20	27	0	0	0	37	33	0	0	0	0	0	8	0	15	0	140	
7:50 AM	7	42	0	0	0	42	24	0	0	0	0	0	12	0	16	0	143	
7:55 AM	15	41	0	0	0	33	15	0	0	0	0	0	12	0	19	0	135	1453
8:00 AM	9	36	0	0	0	43	28	0	0	0	0	0	3	0	16	0	135	1492
8:05 AM	13	26	0	0	0	48	31	0	0	0	0	0	7	0	12	0	137	1526
8:10 AM	6	25	0	0	0	33	28	0	0	0	0	0	8	0	19	0	119	1556
8:15 AM	14	27	0	0	0	40	30	0	0	0	0	0	10	0	13	0	134	1596
8:20 AM	12	25	0	0	0	28	26	0	0	0	0	0	14	0	18	0	123	1615
8:25 AM	13	22	0	0	0	36	24	0	0	0	0	0	8	0	18	0	121	1613
8:30 AM	19	34	0	0	0	29	29	0	0	0	0	0	3	0	9	0	123	1619
8:35 AM	7	31	0	0	0	36	27	0	0	0	0	0	8	0	20	0	129	1591
8:40 AM	9	24	0	0	0	31	33	0	0	0	0	0	11	0	23	0	131	1570
8:45 AM	12	15	0	0	0	43	32	0	0	0	0	0	8	0	10	0	120	1550
8:50 AM	7	32	0	0	0	38	22	0	0	0	0	0	9	0	26	0	134	1541
8:55 AM	16	21	0	0	0	37	30	0	0	0	0	0	10	0	15	0	129	1535
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	208	364	0	0	0	576	400	0	0	0	0	0	100	0	148	0	1796	
Heavy Trucks	0	56	0	0	0	20	8	0	0	0	0	0	4	0	36	0	124	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 10th St -- I-205 NB Ramps
CITY/STATE: West Linn, OR

QC JOB #: 13358505
DATE: Tue, Apr 14 2015

Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:35 AM -- 7:50 AM



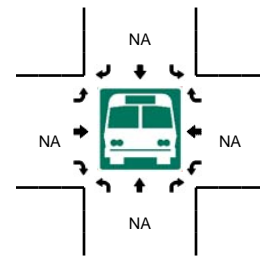
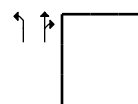
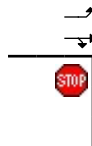
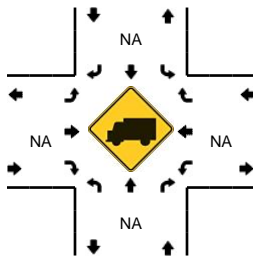
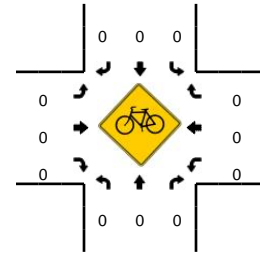
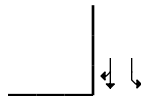
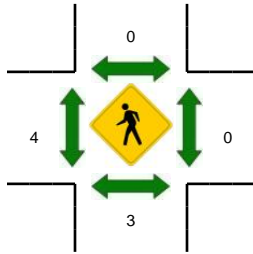
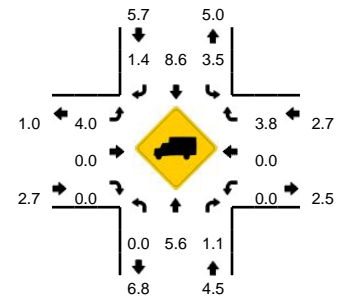
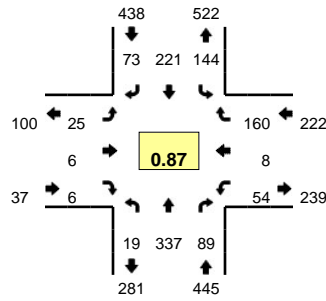
5-Min Count Period Beginning At	10th St (Northbound)				10th St (Southbound)				I-205 NB Ramps (Eastbound)				I-205 NB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	16	12	0	19	17	0	0	11	0	9	0	0	0	0	0	84	
7:05 AM	0	21	24	0	22	19	0	0	8	0	5	0	0	0	0	0	99	
7:10 AM	0	22	14	0	15	25	0	0	7	0	6	0	0	0	0	0	89	
7:15 AM	0	24	14	0	22	15	0	0	8	0	11	0	0	0	0	0	94	
7:20 AM	0	29	21	0	18	19	0	0	10	0	12	0	0	0	0	0	109	
7:25 AM	0	27	20	0	26	22	0	0	13	0	13	0	0	0	0	0	121	
7:30 AM	0	12	11	0	16	19	0	0	5	0	9	0	0	0	0	0	72	
7:35 AM	0	38	23	0	27	37	0	0	11	0	7	0	0	0	0	0	143	
7:40 AM	0	32	18	0	31	29	0	0	19	0	6	0	0	0	0	0	135	
7:45 AM	0	38	20	0	22	26	0	0	13	0	10	0	0	0	0	0	129	
7:50 AM	0	36	20	0	23	29	0	0	15	0	4	0	0	0	0	0	127	
7:55 AM	0	32	12	0	17	24	0	0	25	0	14	0	0	0	0	0	124	1326
8:00 AM	0	18	11	0	23	27	0	0	16	0	11	0	0	0	0	0	106	1348
8:05 AM	0	20	9	0	23	26	0	0	18	0	14	0	0	0	0	0	110	1359
8:10 AM	0	27	10	0	22	26	0	0	13	0	12	0	0	0	0	0	110	1380
8:15 AM	0	19	14	0	25	24	0	0	10	0	11	0	0	0	0	0	103	1389
8:20 AM	0	26	27	0	21	25	0	0	21	0	5	0	0	0	0	0	125	1405
8:25 AM	0	30	13	0	17	29	0	0	10	0	8	0	0	0	0	0	107	1391
8:30 AM	0	27	11	0	18	11	0	0	14	0	9	0	0	0	0	0	90	1409
8:35 AM	0	24	19	0	21	24	0	0	21	0	13	0	0	0	0	0	122	1388
8:40 AM	0	23	17	0	14	25	0	0	11	0	11	0	0	0	0	0	101	1354
8:45 AM	0	21	19	0	26	28	0	0	4	0	11	0	0	0	0	0	109	1334
8:50 AM	0	25	14	0	17	27	0	0	20	0	8	0	0	0	0	0	111	1318
8:55 AM	0	25	6	0	25	26	0	0	10	0	6	0	0	0	0	0	98	1292
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	432	244	0	320	368	0	0	172	0	92	0	0	0	0	0	1628	
Heavy Trucks	0	32	0	0	0	20	0	0	16	0	0	0	0	0	0	0	68	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: 10th St -- 8th Ave
CITY/STATE: West Linn, OR

QC JOB #: 13358503
DATE: Tue, Apr 14 2015

Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:35 AM -- 7:50 AM



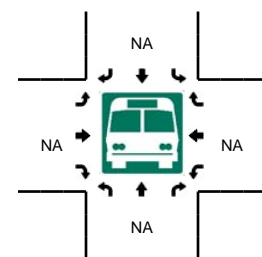
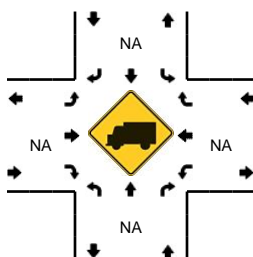
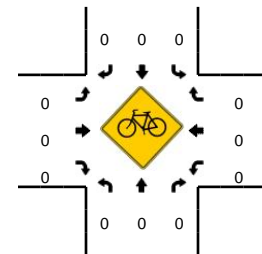
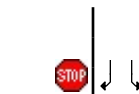
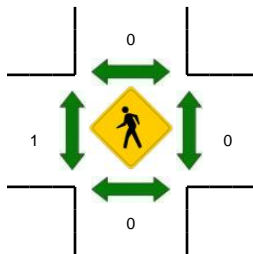
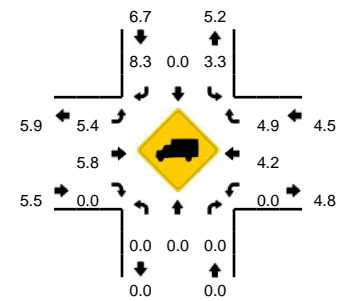
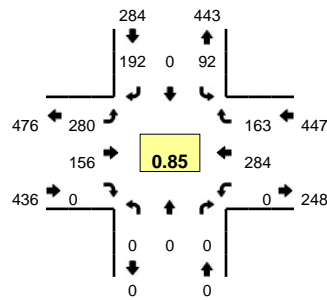
5-Min Count Period Beginning At	10th St (Northbound)				10th St (Southbound)				8th Ave (Eastbound)				8th Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	16	5	0	16	5	4	0	0	0	0	0	2	0	10	0	58	
7:05 AM	0	31	9	0	14	8	3	0	0	1	1	0	4	0	12	0	83	
7:10 AM	1	24	6	0	10	15	6	0	1	2	0	0	5	2	13	0	85	
7:15 AM	0	25	6	0	14	8	4	0	2	1	0	0	3	0	11	0	74	
7:20 AM	0	32	8	0	7	20	4	0	4	0	0	0	5	0	13	0	93	
7:25 AM	0	27	6	0	15	11	8	0	2	0	0	0	5	0	17	0	91	
7:30 AM	1	27	11	0	15	19	4	0	1	0	1	0	4	0	10	0	93	
7:35 AM	2	37	9	0	13	24	7	0	4	1	0	0	5	0	15	0	117	
7:40 AM	0	36	4	0	6	26	3	0	1	0	1	0	6	2	18	0	103	
7:45 AM	0	42	10	0	13	17	7	0	1	0	0	0	6	1	10	0	107	
7:50 AM	4	39	9	0	7	17	8	0	2	1	0	0	2	0	14	0	103	
7:55 AM	5	27	9	0	10	20	8	0	2	0	0	0	2	2	18	0	103	1110
8:00 AM	6	16	5	0	9	18	9	0	0	1	1	0	5	0	11	0	81	1133
8:05 AM	0	16	5	0	16	18	8	0	1	0	2	0	4	1	10	0	81	1131
8:10 AM	0	21	6	0	14	18	4	0	4	2	0	0	5	2	11	0	87	1133
8:15 AM	1	17	7	0	19	13	3	0	3	1	1	0	5	0	13	0	83	1142
8:20 AM	1	31	9	0	6	11	7	0	2	0	2	0	5	0	23	0	97	1146
8:25 AM	1	23	7	0	16	19	1	0	2	0	0	0	2	1	13	0	85	1140
8:30 AM	1	19	9	0	13	9	1	0	3	1	0	0	2	2	17	0	77	1124
8:35 AM	3	22	2	0	19	10	9	0	6	1	0	0	7	0	18	0	97	1104
8:40 AM	1	19	3	0	11	17	7	0	3	0	0	0	3	1	16	0	81	1082
8:45 AM	1	16	5	0	15	18	5	0	6	3	0	0	1	0	14	0	84	1059
8:50 AM	0	25	6	0	12	13	9	0	2	0	1	0	1	1	15	0	85	1041
8:55 AM	2	12	2	0	14	11	6	0	3	1	1	0	6	2	13	0	73	1011
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	460	92	0	128	268	68	0	24	4	4	0	68	12	172	0	1308	
Heavy Trucks	0	32	0		4	28	0		0	0	0		0	0	4		68	
Pedestrians	0				0				4				0				4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 10th St -- Willamette Falls Dr
CITY/STATE: West Linn, OR

QC JOB #: 13358501
DATE: Tue, Apr 14 2015

Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:35 AM -- 7:50 AM



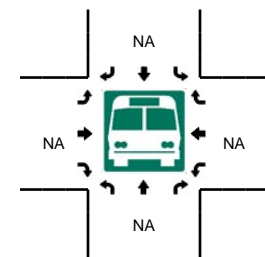
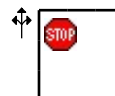
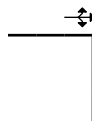
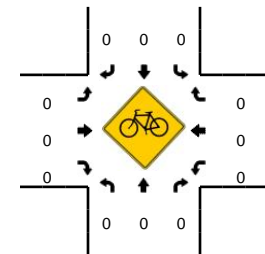
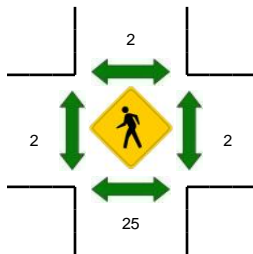
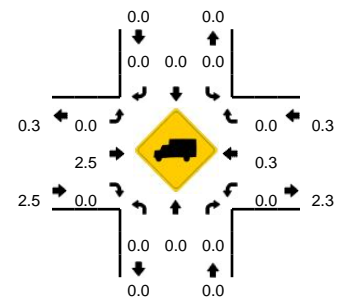
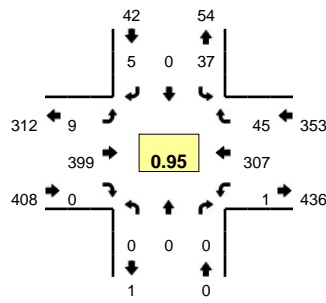
5-Min Count Period Beginning At	10th St (Northbound)				10th St (Southbound)				Willamette Falls Dr (Eastbound)				Willamette Falls Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	5	0	11	5	0	0	0	18	10	0	49	
7:05 AM	0	0	0	0	7	0	7	0	25	7	0	0	0	22	14	0	82	
7:10 AM	0	0	0	0	9	0	12	0	20	7	0	0	0	27	12	0	87	
7:15 AM	0	0	0	0	2	0	8	0	15	9	0	0	0	30	17	0	81	
7:20 AM	0	0	0	0	6	0	19	0	22	14	0	0	0	23	18	0	102	
7:25 AM	0	0	0	0	8	0	9	0	18	9	0	0	0	29	14	0	87	
7:30 AM	0	0	0	0	9	0	16	0	25	12	0	0	0	24	14	0	100	
7:35 AM	0	0	0	0	5	0	25	0	32	9	0	0	0	27	16	0	114	
7:40 AM	0	0	0	0	9	0	21	0	31	16	0	0	0	29	8	0	114	
7:45 AM	0	0	0	0	5	0	21	0	40	16	0	0	0	20	12	0	114	
7:50 AM	0	0	0	0	1	0	18	0	35	15	0	0	0	22	16	0	107	
7:55 AM	0	0	0	0	9	0	12	0	20	10	0	0	0	20	20	0	91	1128
8:00 AM	0	0	0	0	9	0	16	0	15	15	0	0	0	23	12	0	90	1169
8:05 AM	0	0	0	0	11	0	12	0	12	16	0	0	0	13	9	0	73	1160
8:10 AM	0	0	0	0	12	0	13	0	15	12	0	0	0	22	14	0	88	1161
8:15 AM	0	0	0	0	8	0	10	0	15	12	0	0	0	32	10	0	87	1167
8:20 AM	0	0	0	0	10	0	11	0	24	14	0	0	0	20	17	0	96	1161
8:25 AM	0	0	0	0	3	0	18	0	11	6	0	0	0	32	17	0	87	1161
8:30 AM	0	0	0	0	3	0	6	0	16	8	0	0	0	23	15	0	71	1132
8:35 AM	0	0	0	0	8	0	10	0	12	7	0	0	0	29	13	0	79	1097
8:40 AM	0	0	0	0	4	0	14	0	14	6	0	0	0	17	9	0	64	1047
8:45 AM	0	0	0	0	4	0	15	0	17	10	0	0	0	16	7	0	69	1002
8:50 AM	0	0	0	0	3	0	13	0	19	6	0	0	0	14	10	0	65	960
8:55 AM	0	0	0	0	3	0	16	0	6	4	0	0	0	15	12	0	56	925
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	0	0	0	76	0	268	0	412	164	0	0	0	304	144	0	1368	
Heavy Trucks	0	0	0	0	0	0	28	0	32	16	0	0	0	12	4	0	92	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: 13th St -- Blankenship Rd
CITY/STATE: West Linn, OR

QC JOB #: 13358516
DATE: Tue, Apr 14 2015

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

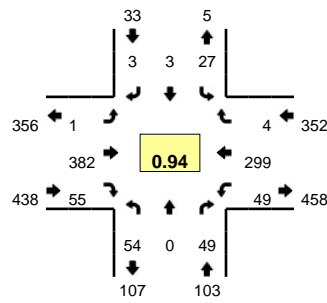


5-Min Count Period Beginning At	13th St (Northbound)				13th St (Southbound)				Blankenship Rd (Eastbound)				Blankenship Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	3	0	0	0	1	27	0	0	0	22	1	0	54	
4:05 PM	0	0	0	0	2	0	1	0	1	39	0	0	0	15	3	0	61	
4:10 PM	0	0	0	0	1	0	1	0	0	24	0	0	0	25	3	0	54	
4:15 PM	0	0	0	0	2	0	0	0	1	28	0	0	0	23	5	0	59	
4:20 PM	0	0	0	0	6	0	1	0	2	42	0	0	0	26	3	0	80	
4:25 PM	0	0	0	0	3	0	0	0	0	27	0	0	0	18	6	0	54	
4:30 PM	0	0	0	0	4	0	1	0	0	25	0	0	0	28	2	0	60	
4:35 PM	0	0	0	0	1	0	0	0	1	43	0	0	0	21	3	0	69	
4:40 PM	0	0	0	0	1	0	0	0	0	32	0	0	0	26	6	0	65	
4:45 PM	0	0	0	0	2	0	1	0	0	32	0	0	0	36	0	0	71	
4:50 PM	0	0	0	0	2	0	0	0	1	31	0	0	0	25	10	0	69	
4:55 PM	0	0	0	0	2	0	1	0	0	31	0	0	0	28	3	0	65	761
5:00 PM	0	0	0	0	6	0	0	0	0	32	0	0	1	20	2	0	61	768
5:05 PM	0	0	0	0	6	0	0	0	2	43	0	0	0	28	2	0	81	788
5:10 PM	0	0	0	0	2	0	1	0	2	33	0	0	0	28	3	0	69	803
5:15 PM	0	0	0	0	6	0	0	0	1	28	0	0	0	20	2	0	57	801
5:20 PM	0	0	1	0	2	0	0	0	2	41	0	0	1	18	4	0	69	790
5:25 PM	0	0	0	0	5	0	0	0	1	23	0	0	0	32	1	0	62	798
5:30 PM	0	0	0	0	2	0	1	0	1	26	0	0	0	23	3	0	56	794
5:35 PM	0	0	0	0	4	0	0	0	1	29	0	0	1	30	0	0	65	790
5:40 PM	0	0	0	0	1	0	0	0	0	32	0	0	0	34	2	0	69	794
5:45 PM	0	0	0	0	0	0	0	0	0	27	0	0	0	27	8	0	62	785
5:50 PM	0	0	1	0	1	0	2	0	1	28	0	0	0	27	3	0	63	779
5:55 PM	0	0	0	0	3	0	0	0	3	21	0	0	0	24	2	0	53	767
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	0	0	0	56	0	4	0	16	432	0	0	4	304	28	0	844	
Heavy Trucks	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	
Pedestrians	20				0				0				0				20	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

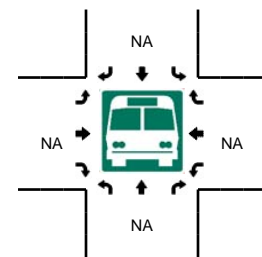
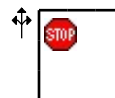
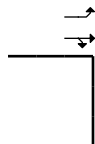
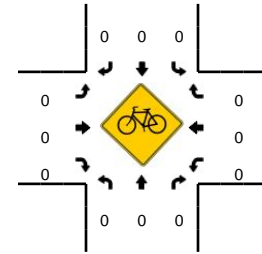
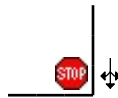
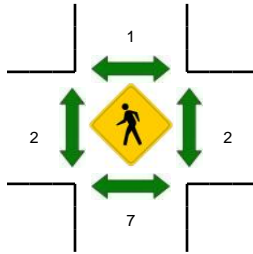
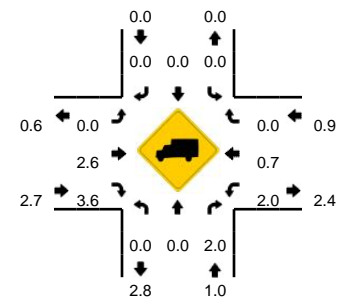
Comments:

LOCATION: Site Access/Haggen's Access -- Blankenship Rd
CITY/STATE: West Linn, OR

QC JOB #: 13358514
DATE: Tue, Apr 14 2015



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:40 PM -- 4:55 PM



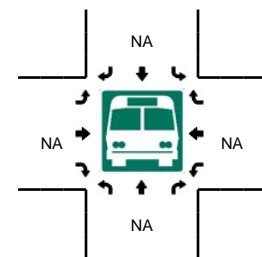
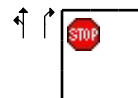
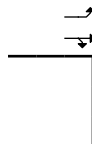
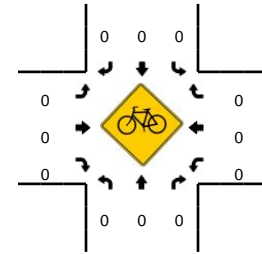
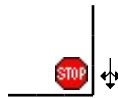
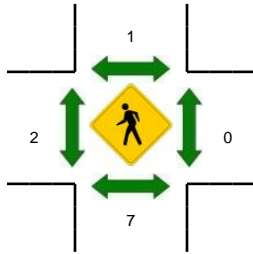
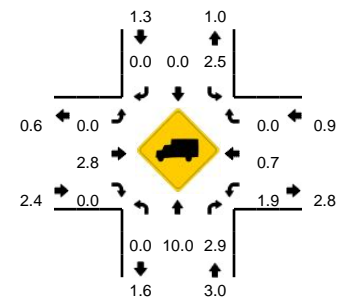
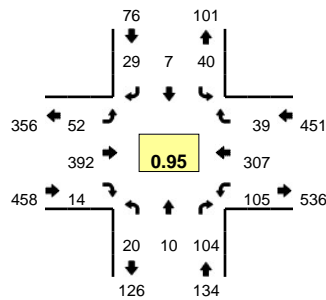
5-Min Count Period Beginning At	Site Access/Haggen's Access (Northbound)				Site Access/Haggen's Access (Southbound)				Blankenship Rd (Eastbound)				Blankenship Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	3	0	1	0	2	0	0	25	5	0	5	21	1	0	63	
4:05 PM	3	0	6	0	3	0	0	0	0	34	7	0	3	15	1	0	72	
4:10 PM	7	0	5	0	8	1	0	0	0	23	4	0	4	21	3	0	76	
4:15 PM	6	0	8	0	2	1	0	0	0	25	6	0	5	25	0	0	78	
4:20 PM	6	0	4	0	2	1	1	0	0	39	8	0	1	21	0	0	83	
4:25 PM	3	0	3	0	2	0	0	0	1	24	4	0	4	20	1	0	62	
4:30 PM	4	0	1	0	2	0	0	0	0	23	7	0	3	27	1	0	68	
4:35 PM	2	0	4	0	1	0	0	0	0	36	5	0	7	21	1	0	77	
4:40 PM	4	0	3	0	3	0	1	0	0	33	2	0	5	30	0	0	81	
4:45 PM	4	0	5	0	3	0	0	0	0	30	7	0	3	30	0	0	82	
4:50 PM	7	0	5	0	2	0	0	0	0	30	2	0	5	30	1	0	82	
4:55 PM	5	0	2	0	3	0	0	0	0	30	3	0	6	25	0	0	74	898
5:00 PM	4	0	5	0	2	1	1	0	0	34	5	0	3	18	0	0	73	908
5:05 PM	5	0	5	0	3	0	0	0	0	44	4	0	3	25	0	0	89	925
5:10 PM	4	0	4	0	2	0	0	0	0	34	2	0	4	27	0	0	77	926
5:15 PM	5	0	2	0	3	0	0	0	0	29	4	0	5	18	0	0	66	914
5:20 PM	6	0	5	0	0	0	0	0	0	36	6	0	4	17	0	0	74	905
5:25 PM	6	0	4	0	2	1	0	0	0	26	2	0	3	27	0	0	71	914
5:30 PM	5	0	4	0	3	1	0	0	0	21	7	0	5	20	0	0	66	912
5:35 PM	4	0	3	0	1	0	0	0	1	26	7	0	3	27	0	0	72	907
5:40 PM	12	0	3	0	0	0	0	0	0	33	2	0	2	24	0	0	76	902
5:45 PM	11	0	1	0	3	1	1	0	0	24	3	0	2	25	0	0	71	891
5:50 PM	7	0	2	0	2	0	0	0	0	29	1	0	4	20	1	0	66	875
5:55 PM	3	0	7	0	1	0	1	0	0	20	4	0	4	25	1	0	66	867
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	60	0	52	0	32	0	4	0	0	372	44	0	52	360	4	0	980	
Heavy Trucks	0	0	0		0	0	0		0	12	0		0	8	0		20	
Pedestrians		8				0				4				8			20	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Tannler Dr -- Blankenship Rd
CITY/STATE: West Linn, OR

QC JOB #: 13358512
DATE: Tue, Apr 14 2015

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



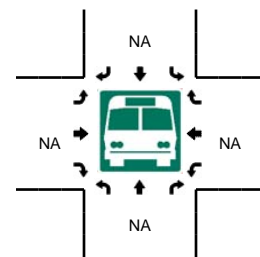
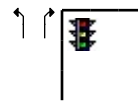
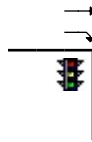
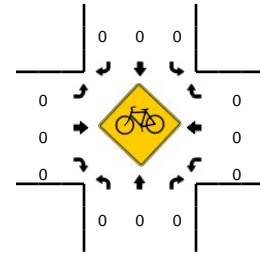
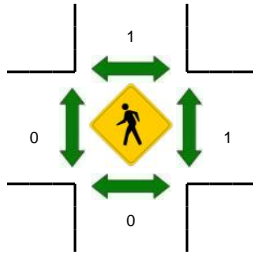
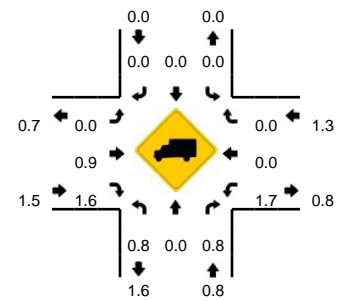
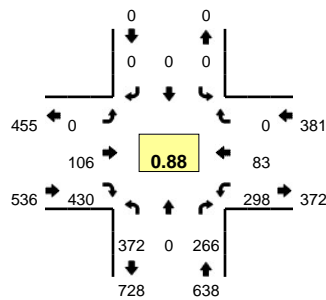
5-Min Count Period Beginning At	Tannler Dr (Northbound)				Tannler Dr (Southbound)				Blankenship Rd (Eastbound)				Blankenship Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	2	5	0	3	1	1	0	4	25	0	0	6	21	2	0	71	
4:05 PM	0	2	5	0	5	0	0	0	6	36	1	0	5	22	2	0	84	
4:10 PM	2	2	5	0	5	0	4	0	4	31	1	0	7	19	2	0	82	
4:15 PM	1	2	9	0	3	0	1	0	5	28	2	0	8	28	2	0	89	
4:20 PM	1	0	10	0	3	0	1	0	8	37	0	0	9	23	2	0	94	
4:25 PM	0	0	10	0	3	1	2	0	1	28	0	0	9	22	3	0	79	
4:30 PM	4	2	11	0	4	0	3	0	2	24	1	0	10	22	1	0	84	
4:35 PM	1	1	8	0	3	1	2	0	5	32	4	0	7	30	7	0	101	
4:40 PM	1	1	5	0	3	0	1	0	7	31	0	0	14	29	3	0	95	
4:45 PM	1	1	4	0	5	0	7	0	3	33	2	0	9	28	3	0	96	
4:50 PM	4	0	11	0	1	2	3	0	5	31	1	0	8	30	4	0	100	
4:55 PM	2	1	8	0	1	2	1	0	4	31	0	0	8	24	3	0	85	1060
5:00 PM	2	1	7	0	6	0	3	0	3	38	0	0	12	16	4	0	92	1081
5:05 PM	2	1	14	0	5	0	3	0	4	46	2	0	2	25	1	0	105	1102
5:10 PM	1	0	7	0	3	1	2	0	5	33	2	0	9	30	6	0	99	1119
5:15 PM	1	0	6	0	2	1	1	0	6	28	0	0	11	17	8	0	81	1111
5:20 PM	0	2	13	0	5	0	3	0	10	31	0	0	15	19	4	0	102	1119
5:25 PM	3	0	8	0	3	0	6	0	3	29	1	0	12	20	3	0	88	1128
5:30 PM	3	1	2	0	3	0	3	0	2	26	0	0	6	20	1	0	67	1111
5:35 PM	2	2	7	0	6	0	7	0	7	24	0	0	10	20	4	0	89	1099
5:40 PM	3	1	8	0	5	0	2	0	7	28	0	0	11	21	2	0	88	1092
5:45 PM	0	0	9	0	8	0	2	0	3	29	0	0	9	27	7	0	94	1090
5:50 PM	1	0	9	0	2	0	2	0	4	28	1	0	8	24	3	0	82	1072
5:55 PM	1	0	13	0	3	0	1	0	3	23	1	0	8	28	5	0	86	1073
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	8	112	0	56	4	32	0	48	468	16	0	92	284	44	0	1184	
Heavy Trucks	0	0	4		0	0	0		0	4	0		0	4	0		12	
Pedestrians		8				0				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 10th St -- Salamo Rd
CITY/STATE: West Linn, OR

QC JOB #: 13358510
DATE: Tue, Apr 14 2015

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



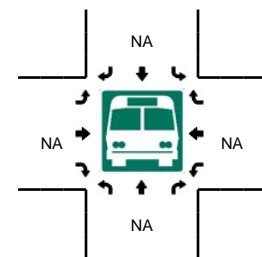
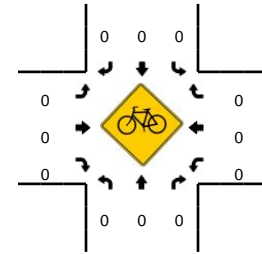
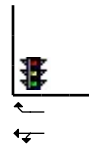
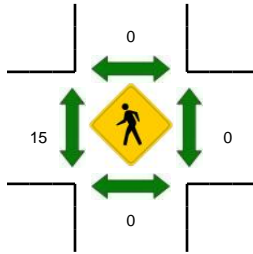
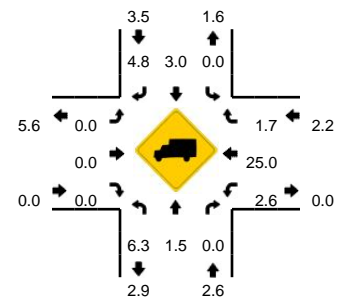
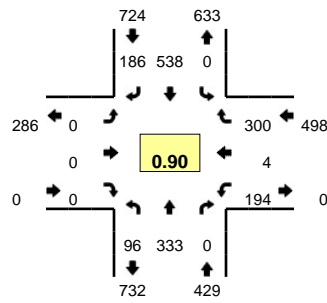
5-Min Count Period Beginning At	10th St (Northbound)				10th St (Southbound)				Salamo Rd (Eastbound)				Salamo Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	18	0	13	0	0	0	0	0	0	9	24	0	16	10	0	0	90	
4:05 PM	24	0	29	0	0	0	0	0	0	7	38	0	23	3	0	0	124	
4:10 PM	25	0	14	0	0	0	0	0	0	11	29	0	38	3	0	0	120	
4:15 PM	35	0	22	0	0	0	0	0	0	7	31	0	22	5	0	0	122	
4:20 PM	29	0	19	0	0	0	0	0	0	10	43	0	17	5	0	0	123	
4:25 PM	28	0	20	0	0	0	0	0	0	7	35	0	19	5	0	0	114	
4:30 PM	25	0	22	0	0	0	0	0	0	5	30	0	28	7	0	0	117	
4:35 PM	40	0	11	0	0	0	0	0	0	8	37	0	18	5	0	0	119	
4:40 PM	40	0	16	0	0	0	0	0	0	7	35	0	29	8	0	0	135	
4:45 PM	25	0	15	0	0	0	0	0	0	12	29	0	28	14	0	0	123	
4:50 PM	37	0	24	0	0	0	0	0	0	6	31	0	29	4	0	0	131	
4:55 PM	27	0	20	0	0	0	0	0	0	11	34	0	30	8	0	0	130	1448
5:00 PM	26	0	30	0	0	0	0	0	0	7	41	0	14	6	0	0	124	1482
5:05 PM	24	0	36	0	0	0	0	0	0	18	50	0	29	5	0	0	162	1520
5:10 PM	36	0	31	0	0	0	0	0	0	8	34	0	35	11	0	0	155	1555
5:15 PM	34	0	31	0	0	0	0	0	0	6	32	0	28	2	0	0	133	1566
5:20 PM	23	0	24	0	0	0	0	0	0	14	36	0	40	15	0	0	152	1595
5:25 PM	27	0	27	0	0	0	0	0	0	8	26	0	24	7	0	0	119	1600
5:30 PM	22	0	19	0	0	0	0	0	0	4	30	0	27	5	0	0	107	1590
5:35 PM	26	0	32	0	0	0	0	0	0	4	35	0	29	8	0	0	134	1605
5:40 PM	28	0	32	0	0	0	0	0	0	9	31	0	41	7	0	0	148	1618
5:45 PM	34	0	31	0	0	0	0	0	0	7	34	0	20	8	0	0	134	1629
5:50 PM	32	0	28	0	0	0	0	0	0	11	32	0	36	7	0	0	146	1644
5:55 PM	33	0	21	0	0	0	0	0	0	7	31	0	14	5	0	0	111	1625
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	344	0	388	0	0	0	0	0	0	132	500	0	312	88	0	0	1764	
Heavy Trucks	0	0	4	0	0	0	0	0	0	0	4	0	0	0	0	0	8	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 10th St -- I-205 SB Ramps
CITY/STATE: West Linn, OR

QC JOB #: 13358508
DATE: Tue, Apr 14 2015

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



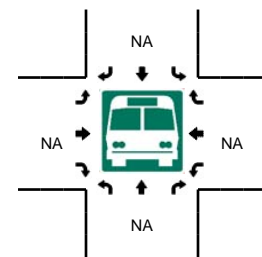
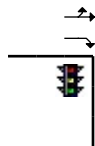
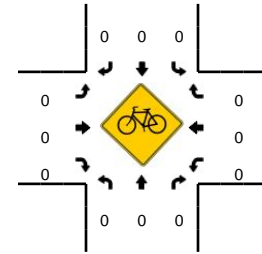
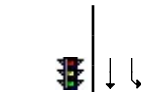
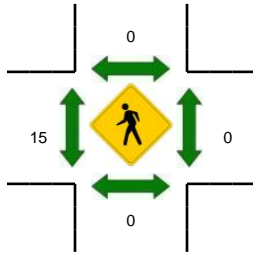
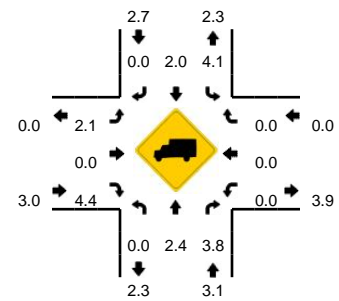
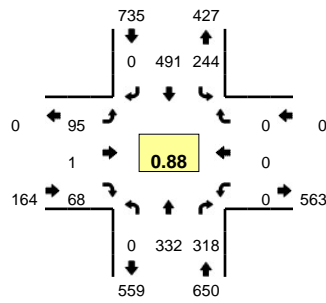
5-Min Count Period Beginning At	10th St (Northbound)				10th St (Southbound)				I-205 SB Ramps (Eastbound)				I-205 SB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	17	0	0	0	28	11	0	0	0	0	0	11	1	15	0	93	
4:05 PM	8	29	0	0	0	43	21	0	0	0	0	0	10	1	23	0	135	
4:10 PM	12	14	0	0	0	43	21	0	0	0	0	0	12	0	27	0	129	
4:15 PM	10	31	0	0	0	43	18	0	0	0	0	0	10	1	25	0	138	
4:20 PM	11	26	0	0	0	44	12	0	0	0	0	0	6	0	19	0	118	
4:25 PM	7	24	0	0	0	46	13	0	0	0	0	0	18	0	27	0	135	
4:30 PM	5	24	0	0	0	35	16	0	0	0	0	0	25	0	26	0	131	
4:35 PM	9	23	0	0	0	40	21	0	0	0	0	0	16	0	27	0	136	
4:40 PM	10	26	0	0	0	45	18	0	0	0	0	0	6	0	26	0	131	
4:45 PM	11	20	0	0	0	40	12	0	0	0	0	0	18	0	18	0	119	
4:50 PM	8	27	0	0	0	43	10	0	0	0	0	0	23	0	35	0	146	
4:55 PM	7	22	0	0	0	56	11	0	0	0	0	0	20	0	24	0	140	1551
5:00 PM	10	36	0	0	0	49	8	0	0	0	0	0	24	3	21	0	151	1609
5:05 PM	2	31	0	0	0	56	20	0	0	0	0	0	14	0	27	0	150	1624
5:10 PM	6	43	0	0	0	41	27	0	0	0	0	0	14	0	25	0	156	1651
5:15 PM	17	35	0	0	0	46	21	0	0	0	0	0	12	0	30	0	161	1674
5:20 PM	4	25	0	0	0	51	19	0	0	0	0	0	14	1	23	0	137	1693
5:25 PM	4	27	0	0	0	31	17	0	0	0	0	0	15	0	28	0	122	1680
5:30 PM	5	21	0	0	0	37	18	0	0	0	0	0	26	0	17	0	124	1673
5:35 PM	5	27	0	0	0	46	20	0	0	0	0	0	11	0	31	0	140	1677
5:40 PM	6	33	0	0	0	48	26	0	0	0	0	0	12	0	30	0	155	1701
5:45 PM	10	35	0	0	0	35	15	0	0	0	0	0	19	1	26	0	141	1723
5:50 PM	10	29	0	0	0	48	20	0	0	0	0	0	10	0	26	0	143	1720
5:55 PM	7	31	0	0	0	35	8	0	0	0	0	0	23	0	28	0	132	1712
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	72	440	0	0	0	584	220	0	0	0	0	0	208	12	292	0	1828	
Heavy Trucks	0	4	0	0	0	0	12	0	0	0	0	0	4	4	8	0	32	
Pedestrians	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	16	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 10th St -- I-205 NB Ramps
CITY/STATE: West Linn, OR

QC JOB #: 13358506
DATE: Tue, Apr 14 2015

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



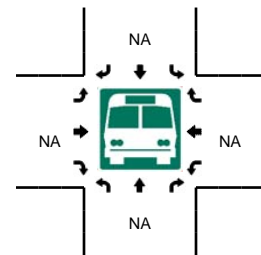
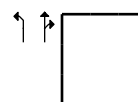
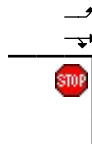
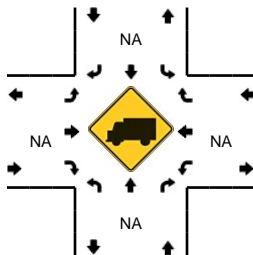
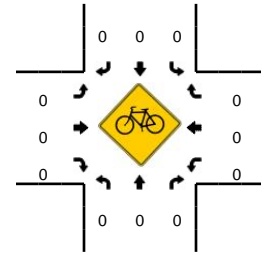
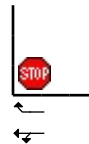
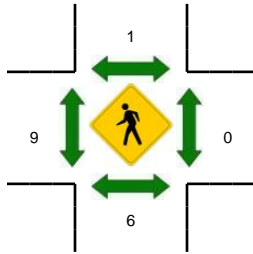
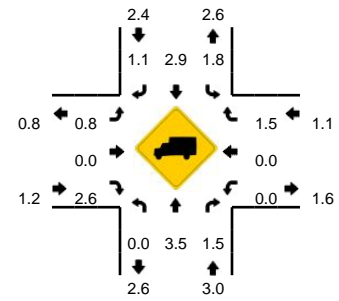
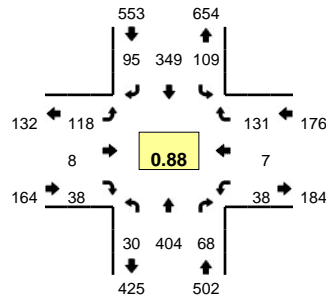
5-Min Count Period Beginning At	10th St (Northbound)				10th St (Southbound)				I-205 NB Ramps (Eastbound)				I-205 NB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	28	17	0	20	21	0	0	2	0	8	0	0	0	0	0	96	
4:05 PM	0	25	25	0	17	30	0	0	9	0	4	0	0	0	0	0	110	
4:10 PM	0	31	15	0	28	30	0	0	2	0	10	0	0	0	0	0	116	
4:15 PM	0	28	22	0	18	36	0	0	6	0	3	0	0	0	0	0	113	
4:20 PM	0	30	28	0	19	35	0	0	4	0	2	0	0	0	0	0	118	
4:25 PM	0	24	24	0	24	38	0	0	9	0	4	0	0	0	0	0	123	
4:30 PM	0	27	23	0	15	41	0	0	5	1	5	0	0	0	0	0	117	
4:35 PM	0	25	28	0	20	35	0	0	6	0	4	0	0	0	0	0	118	
4:40 PM	0	32	22	0	18	34	0	0	6	0	7	0	0	0	0	0	119	
4:45 PM	0	30	28	0	21	43	0	0	5	0	7	0	0	0	0	0	134	
4:50 PM	0	28	29	0	18	42	0	0	5	0	5	0	0	0	0	0	127	
4:55 PM	0	25	34	0	20	55	0	0	6	0	7	0	0	0	0	0	147	1438
5:00 PM	0	30	33	0	19	55	0	0	9	0	7	0	0	0	0	0	153	1495
5:05 PM	0	19	23	0	32	43	0	0	16	0	7	0	0	0	0	0	140	1525
5:10 PM	0	34	24	0	20	34	0	0	18	0	10	0	0	0	0	0	140	1549
5:15 PM	0	39	27	0	24	33	0	0	11	0	12	0	0	0	0	0	146	1582
5:20 PM	0	27	28	0	29	38	0	0	7	0	10	0	0	0	0	0	139	1603
5:25 PM	0	19	27	0	15	31	0	0	6	0	2	0	0	0	0	0	100	1580
5:30 PM	0	19	22	0	11	48	0	0	8	0	5	0	0	0	0	0	113	1576
5:35 PM	0	31	24	0	21	44	0	0	3	0	4	0	0	0	0	0	127	1585
5:40 PM	0	34	22	0	24	37	0	0	6	0	9	0	0	0	0	0	132	1598
5:45 PM	0	32	12	0	25	26	0	0	12	0	4	0	0	0	0	0	111	1575
5:50 PM	0	35	24	0	15	47	0	0	8	1	4	0	0	0	0	0	134	1582
5:55 PM	0	30	15	0	20	36	0	0	14	0	12	0	0	0	0	0	127	1562
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	296	360	0	284	612	0	0	124	0	84	0	0	0	0	0	1760	
Heavy Trucks	0	0	16		8	12	0		0	0	8		0	0	0		44	
Pedestrians	0	0	0		0	0	0		20	0	0		0	0	0		20	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 10th St -- 8th Ave
CITY/STATE: West Linn, OR

QC JOB #: 13358504
DATE: Tue, Apr 14 2015

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:50 PM -- 5:05 PM



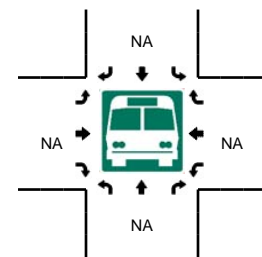
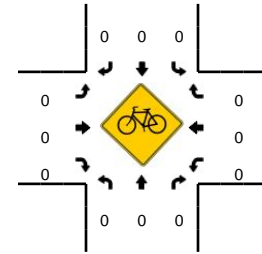
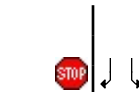
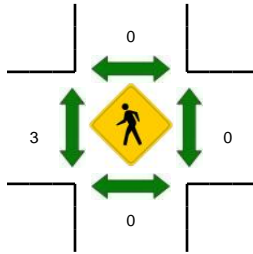
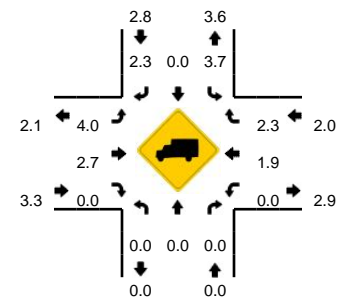
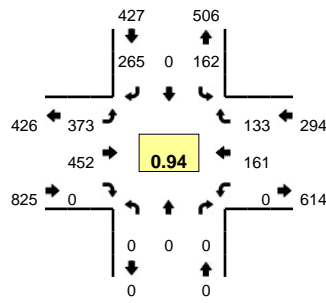
5-Min Count Period Beginning At	10th St (Northbound)				10th St (Southbound)				8th Ave (Eastbound)				8th Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	27	5	0	9	16	4	0	10	1	1	0	4	0	9	0	89	
4:05 PM	3	28	4	0	7	17	7	0	9	0	2	0	0	1	14	0	92	
4:10 PM	0	26	5	0	5	22	14	0	8	0	3	0	1	0	13	0	97	
4:15 PM	4	33	7	0	7	20	10	0	12	0	3	0	3	0	4	0	103	
4:20 PM	3	32	8	0	7	23	7	0	11	0	3	0	4	0	16	0	114	
4:25 PM	2	26	2	0	9	28	5	0	10	2	1	0	3	0	11	0	99	
4:30 PM	2	33	6	0	12	23	7	1	9	0	0	0	2	0	8	0	103	
4:35 PM	3	31	11	0	10	21	9	0	5	1	5	0	4	1	13	0	114	
4:40 PM	2	35	3	0	2	34	4	0	8	1	3	0	4	1	10	0	107	
4:45 PM	3	33	5	0	13	31	5	0	9	1	4	0	0	1	17	0	122	
4:50 PM	3	41	3	0	6	24	16	0	9	1	0	0	1	1	10	0	115	
4:55 PM	0	42	5	0	11	40	10	0	12	1	3	0	6	2	11	0	143	1298
5:00 PM	3	34	7	0	9	45	10	0	11	0	5	0	2	0	14	0	140	1349
5:05 PM	2	26	6	0	13	31	8	0	7	1	3	0	5	1	5	0	108	1365
5:10 PM	3	38	5	0	9	29	4	0	15	0	8	0	4	0	12	0	127	1395
5:15 PM	3	37	5	0	11	30	6	0	10	1	2	0	3	1	16	0	125	1417
5:20 PM	2	31	7	0	10	26	11	0	4	4	2	0	1	0	14	0	112	1415
5:25 PM	3	26	8	0	4	23	7	0	6	1	3	0	8	2	12	0	103	1419
5:30 PM	3	28	6	0	5	29	11	0	5	1	1	0	5	2	9	0	105	1421
5:35 PM	4	38	4	0	13	31	8	0	9	1	2	0	3	0	7	0	120	1427
5:40 PM	3	33	3	0	9	22	12	0	9	0	0	0	4	0	16	0	111	1431
5:45 PM	1	19	4	0	5	19	6	0	8	1	3	0	2	1	12	0	81	1390
5:50 PM	1	33	5	0	13	26	11	0	9	0	3	0	0	2	16	0	119	1394
5:55 PM	1	28	5	0	9	29	9	0	7	0	1	0	5	3	10	0	107	1358
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	24	468	60	0	104	436	144	0	128	8	32	0	36	12	140	0	1592	
Heavy Trucks	0	8	0	0	8	8	4	0	0	0	0	0	0	0	4	0	32	
Pedestrians	8				0				24				0				32	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 10th St -- Willamette Falls Dr
CITY/STATE: West Linn, OR

QC JOB #: 13358502
DATE: Tue, Apr 14 2015

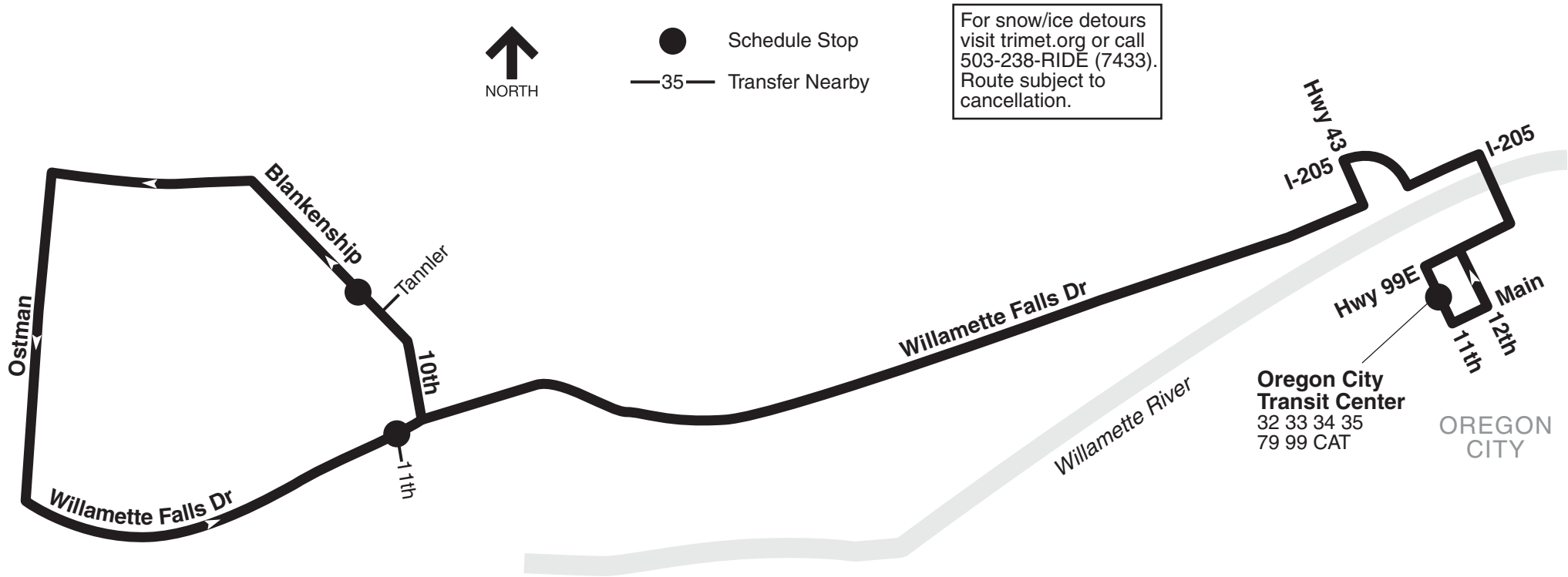
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



5-Min Count Period Beginning At	10th St (Northbound)				10th St (Southbound)				Willamette Falls Dr (Eastbound)				Willamette Falls Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	8	0	16	0	28	37	0	0	0	5	5	0	99	
4:05 PM	0	0	0	0	11	0	8	0	24	40	0	0	0	18	12	0	113	
4:10 PM	0	0	0	0	14	0	13	0	23	35	0	0	0	10	7	0	102	
4:15 PM	0	0	0	0	20	0	7	0	28	37	0	0	0	12	17	0	121	
4:20 PM	0	0	0	0	11	0	17	0	32	40	0	0	0	15	12	0	127	
4:25 PM	0	0	0	0	15	0	19	0	21	43	0	0	0	13	11	0	122	
4:30 PM	0	0	0	0	7	0	18	0	28	42	0	0	0	7	12	0	114	
4:35 PM	0	0	0	0	14	0	16	0	33	34	0	0	0	10	12	0	119	
4:40 PM	0	0	0	0	17	0	25	0	30	42	0	0	0	15	10	0	139	
4:45 PM	0	0	0	0	13	0	21	0	31	36	0	0	0	20	9	0	130	
4:50 PM	0	0	0	0	5	0	24	0	39	34	0	0	0	16	10	0	128	
4:55 PM	0	0	0	0	13	0	32	0	34	33	0	0	0	10	11	0	133	1447
5:00 PM	0	0	0	0	11	0	37	0	34	38	0	0	0	14	12	0	146	1494
5:05 PM	0	0	0	0	14	0	24	0	29	39	0	0	0	18	3	0	127	1508
5:10 PM	0	0	0	0	22	0	25	0	34	34	0	0	0	11	14	0	140	1546
5:15 PM	0	0	0	0	16	0	18	0	36	28	0	0	0	18	7	0	123	1548
5:20 PM	0	0	0	0	12	0	18	0	26	37	0	0	0	10	15	0	118	1539
5:25 PM	0	0	0	0	10	0	22	0	24	20	0	0	0	25	12	0	113	1530
5:30 PM	0	0	0	0	15	0	22	0	26	35	0	0	0	23	11	0	132	1548
5:35 PM	0	0	0	0	11	0	27	0	39	14	0	0	0	13	9	0	113	1542
5:40 PM	0	0	0	0	13	0	13	0	28	34	0	0	0	13	9	0	110	1513
5:45 PM	0	0	0	0	9	0	16	0	21	28	0	0	0	11	6	0	91	1474
5:50 PM	0	0	0	0	12	0	16	0	33	28	0	0	0	11	6	0	106	1452
5:55 PM	0	0	0	0	12	0	24	0	24	36	0	0	0	12	11	0	119	1438
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	0	0	0	188	0	344	0	388	444	0	0	0	172	116	0	1652	
Heavy Trucks	0	0	0	0	4	0	4	0	8	12	0	0	0	4	0	0	32	
Pedestrians	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

154-Willamette



154-Willamette

Weekday	To Willamette	
	Oregon City Transit Center Stop ID 10447	Blankenship & Tanner Dr Stop ID 9297
	6:24	6:33
	7:01	7:10
	8:12	8:21
	9:22	9:31
	10:32	10:41
	11:42	11:51
	12:52	1:01
	2:08	2:17
	3:19	3:28
	4:30	4:39
	5:41	5:50
	6:46	6:55

Times in darker print are p.m.

Please note: Schedules may change without notice by up to three minutes to relieve overcrowding or adjust to traffic conditions. Service can also be affected by construction, accidents and weather conditions. You can check for any current detours or service disruptions at trimet.org/alerts or call 503-238-RIDE (7433) for real-time arrival information from TransitTracker™. All buses, MAX trains and streetcars are accessible to people with disabilities.

154-Willamette

Weekday		Oregon City Transit Center	
	Blankenship & Tanner Dr Stop ID 9297	Willamette Falls Dr & 11th St Stop ID 11766	Oregon City Transit Center
	6:33	6:40	6:47
	7:10	7:17	7:24
	8:21	8:28	8:35
	9:31	9:38	9:45
	10:41	10:48	10:55
	11:51	11:58	12:05
	1:01	1:08	1:15
	2:17	2:24	2:32
	3:28	3:35	3:43
	4:39	4:46	4:54
	5:50	5:57	6:05
	6:55	7:02	7:09

Times in darker print are p.m.

Please note: Schedules may change without notice by up to three minutes to relieve overcrowding or adjust to traffic conditions. Service can also be affected by construction, accidents and weather conditions. You can check for any current detours or service disruptions at trimet.org/alerts or call 503-238-RIDE (7433) for real-time arrival information from TransitTracker™. All buses, MAX trains and streetcars are accessible to people with disabilities.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

10th Street & 8th Avenue/8th Court plus 300 feet
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
REAR-END	0	0	1	1	0	0	0	1	0	0	1	0	1	0
TURNING MOVEMENTS	0	2	0	2	0	3	0	2	0	1	1	2	0	0
2013 TOTAL	0	2	2	4	0	3	0	4	0	2	2	3	1	0
YEAR: 2012														
ANGLE	0	0	1	1	0	0	0	0	1	0	1	1	0	0
TURNING MOVEMENTS	0	0	2	2	0	0	0	1	1	0	2	2	0	0
2012 TOTAL	0	0	3	3	0	0	0	1	2	0	3	3	0	0
YEAR: 2011														
ANGLE	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2011 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR: 2010														
ANGLE	0	0	1	1	0	0	0	0	1	0	1	1	0	0
TURNING MOVEMENTS	0	0	2	2	0	0	0	1	1	1	1	2	0	0
2010 TOTAL	0	0	3	3	0	0	0	1	2	1	2	3	0	0
YEAR: 2009														
REAR-END	0	1	0	1	0	2	0	1	0	1	0	0	0	0
TURNING MOVEMENTS	0	0	2	2	0	0	0	2	0	1	1	2	0	0
2009 TOTAL	0	1	2	3	0	2	0	3	0	2	1	2	0	0
FINAL TOTAL	0	4	10	14	0	6	0	10	4	6	8	12	1	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Greene Street & Tannler Drive plus 300 feet
 January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
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YEAR:

TOTAL

FINAL TOTAL

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF WEST LINN, CLACKAMAS COUNTY

Blankenship Road from Tannler Drive to Summerlinn Drive/13th Street (excluding ending intersections)
January 1, 2009 through December 31, 2013

SER#	INVEST	S P E D	D R S W A U C O L G H R C S L K	DATE	CLASS	CITY STREET	RD CHAR	INT-TYP (MEDIAN)	INT-REL	OFF-RD	WTHR	CRASH TYP	SPCL USE	MOVE	A	S	PED	ERROR	ACTN	EVENT	CAUSE	
		E L G H R C S L K		DAY	DIST	FIRST STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	OWNER	FROM								
				TIME	FROM	SECOND STREET	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E	X	RES	
04350	N N N			11/10/2013	17	BLANKENSHIP RD	STRGHT		N		N CLR	ANIMAL	01	NONE	0	STRGHT					035	12
NONE				Sun	100	TANNER DR	NW	(NONE)	UNKNOWN		N DRY	OTH		PRVTE	NW SE						000 035	00
				5A			08				N DARK	PDO		PSNGR CAR		01	DRVR	NONE	62	F	OR-Y	12
								(02)												OR<25	000	000

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Blankenship Road from Tannler Drive to Summerlinn Drive/13th Street (excluding ending intersections)
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
MISCELLANEOUS	0	0	1	1	0	0	0	1	0	0	1	0	0	0
2013 TOTAL	0	0	1	1	0	0	0	1	0	0	1	0	0	0
FINAL TOTAL	0	0	1	1	0	0	0	1	0	0	1	0	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 URBAN NON-SYSTEM CRASH LISTING

CITY OF WEST LINN, CLACKAMAS COUNTY

Blankenship Roadt & Tannler Drive plus 300 feet
 January 1, 2009 through December 31, 2013

SER# INVEST	S P E D E L G H R D C S L K			DATE TIME	CLASS DIST FROM	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFF-RD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE			P#	PRTC TYPE	INJ SVRTY	A S			PED LOC ERROR	ACTN	EVENT	CAUSE
	TRLR QTY OWNER VEH TYPE	MOVE FROM TO	G E X RES										LICNS												

02268 CITY	Y N N N N	07/01/2010 Thu 4A	17 50	BLANKENSHIP RD TANNER DR	STRGHT SW 06	(NONE) (02)	N NONE	N N N	CLR DRY DLIT	PRKD MV REAR INJ	01 NONE PRVTE PSNGR CAR	0 NW SE	STRGHT NW SE	01 DRVR INJC	57 M OR-Y OR<25	016,050,026	000 000	27,30,20 00 27,30
											02 NONE RENTL OTHER	0 NW SE	PRKD-I NW SE				008	20
04350 NONE	N N N	11/10/2013 Sun 5A	17 100	BLANKENSHIP RD TANNER DR	STRGHT NW 08	(NONE) (02)	N UNKNOWN	N N N	CLR DRY DARK	ANIMAL OTH PDO	01 NONE PRVTE PSNGR CAR	0 NW SE	STRGHT NW SE	01 DRVR NONE	62 F OR-Y OR<25	000	000 000	035 035 12
02373 CITY	N N N N N	07/06/2011 Wed 9A	17 0	BLANKENSHIP RD TANNER DR	INTER CN 02	0	N STOP SIGN	N N Y	CLR DRY DAY	ANGL-OTH ANGL INJ	01 NONE PRVTE PSNGR CAR	0 SW NE	STRGHT SW NE	01 DRVR NONE	18 M OR-Y OR<25	052,028	018 000	32,02 00 32,02
											02 NONE PRVTE PSNGR CAR	0 SE NW	STRGHT SE NW	01 DRVR INJB	51 F OR-Y OR<25	000	000 000	00 00
01788 CITY	N N N N N	05/22/2013 Wed 12P	17 0	BLANKENSHIP RD TANNER DR	INTER CN 02	3-LEG 0	N NONE	N N Y	RAIN WET DAY	ANGL-OTH TURN INJ	01 NONE PRVTE PSNGR CAR	0 SW NE	STRGHT SW NE	01 DRVR NONE	43 F OR-Y OR<25	028	015 000	02 00 02
											02 NONE PRVTE PSNGR CAR	0 SE NW	STRGHT SE NW	01 DRVR INJC	16 M OR-Y OR<25	000	000 000	00 00
00470 NONE	N N N N N	02/06/2010 Sat 4P	17 0	BLANKENSHIP RD TANNER DR	INTER CN 04	3-LEG 0	N STOP SIGN	N N Y	CLR DRY DAY	O-1TURN TURN PDO	01 NONE PRVTE PSNGR CAR	0 SW NE	STRGHT SW NE	01 DRVR NONE	00 M UNK UNK	028	000 000	02 00 02
											02 NONE PRVTE PSNGR CAR	0 NE SE	TURN-L NE SE	01 DRVR NONE	31 M OR-Y OR<25	000	015 000	00 00

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Blankenship Roadt & Tannler Drive plus 300 feet
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
MISCELLANEOUS	0	0	1	1	0	0	0	1	0	0	1	0	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	0	1	1	0	1	0	0
2013 TOTAL	0	1	1	2	0	1	0	1	1	1	1	1	0	0
YEAR: 2011														
ANGLE	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2011 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR: 2010														
REAR-END	0	1	0	1	0	1	0	1	0	0	1	0	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2010 TOTAL	0	1	1	2	0	1	0	2	0	1	1	1	0	0
FINAL TOTAL	0	3	2	5	0	3	0	4	1	3	2	3	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF WEST LINN, CLACKAMAS COUNTY

10th Street & Willamette Falls Drive plus 300 feet
January 1, 2009 through December 31, 2013

SER#	S P E D E L D C S L K	D R S W U C O H R A U C O L K	DATE	CLASS	CITY STREET	RD CHAR	INT-TYP	INT-REL	OFF-RD	WTHR	CRASH TYP	SPCL USE	MOVE	A	S	PED	ERROR	ACTN	EVENT	CAUSE
INVEST	D	C	TIME	FROM	FIRST STREET SECOND STREET	DIRECT LOCTN	(#LANES)	TRAF- CONTL	RNDBT DRVWY	SURF LIGHT	COLL TYP SVRTY	VEH TYPE	FROM TO	P#	TYPE	SVRTY	G E X RES	LOC		
04581 NONE	N	N	11/30/2011 Wed 4P	16 0	WILLAMETTE FALLS DR 10TH ST	INTER SW 06	3-LEG 0	N STOP SIGN	N N	CLR DRY DAY	S-1STOP REAR PDO	01 NONE PSNGR CAR	0 PRVTE SW NE	01	DRVR	NONE	00 M UNK UNK	026	000	07
												02 NONE PRVTE PSNGR CAR	0 SW NE	01	DRVR	NONE	46 M OR-Y OR<25	000	011 000	00 00
02637 NONE	N	N	07/23/2011 Sat 7P	16 0	WILLAMETTE FALLS DR 10TH ST	INTER CN 01	3-LEG 0	N STOP SIGN	N N	CLR DRY DAY	ANGL-OTH TURN PDO	01 NONE PSNGR CAR	0 TURN-R N SW	01	DRVR	NONE	00 M OR-Y OR<25	028	015 000	02 00
												02 NONE PRVTE PSNGR CAR	0 STRGHT NE SW	01	DRVR	NONE	18 F OR-Y OR<25	000	000	00 00
02189 NONE	N	N	06/28/2010 Mon 12P	16 0	WILLAMETTE FALLS DR 10TH ST	INTER CN 02	3-LEG 0	N STOP SIGN	N N	CLR DRY DAY	S-1TURN REAR PDO	01 NONE PSNGR CAR	0 STRGHT NE SW	01	DRVR	NONE	38 F OR-Y OR<25	026	000	07 00
												02 NONE PRVTE PSNGR CAR	0 STOP NE N	01	DRVR	NONE	65 F OR-Y OR<25	000	013 000	00 00
														02	PSNG	NO<5	04 M	000	000	00
02098 NONE	N	N	06/09/2009 Tue 4P	16 0	WILLAMETTE FALLS DR 10TH ST	INTER CN 03	3-LEG 0	N UNKNOWN	N N	CLR DRY DAY	ANGL-OTH TURN PDO	01 NONE PSNGR CAR	0 STRGHT W E	01	DRVR	NONE	21 F OR-Y OR<25	028	000	02 00
												02 NONE PRVTE PSNGR CAR	0 TURN-L E S	01	DRVR	NONE	43 F OR-Y OR<25	000	000	00 00

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

1r en Sd&&ea l ivpu &ea Fpws Dti3&0f s Jrr y&&e
, p2f pt9 1hor r g entcf m D&b&u K&t J1hor 1J

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE WILLED	PEOPLE IN,URED	TRUCWS	DRY SURF	I ET SURF	DAY	DARW	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: or 11														
REAR-END	r	r	1	1	r	r	r	1	r	1	r	1	r	r
TURNING MOVEMENTS	r	r	1	1	r	r	r	1	r	1	r	1	r	r
or 11 TOTAL	r	r	o	o	r	r	r	o	r	o	r	o	r	r
YEAR: or 1r														
REAR-END	r	r	1	1	r	r	r	1	r	1	r	1	r	r
or 1r TOTAL	r	r	1	1	r	r	r	1	r	1	r	1	r	r
YEAR: or r g														
TURNING MOVEMENTS	r	r	1	1	r	r	r	1	r	1	r	1	r	r
or r g TOTAL	r	r	1	1	r	r	r	1	r	1	r	1	r	r
FINAL TOTAL	r	r	4	4	r	r	r	4	r	4	r	4	r	r

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

064 EAST PORTLAND FREEWAY

10th Street & I-205 (Hwy 064) Westbound Ramps plus 300 feet
January 1, 2009 through December 31, 2013

SER#	S D					RD#	FC	INT-TYP					SPCL USE					A S					PED	LOC	ERROR	ACTN	EVENT	CAUSE				
	P	R	S	W	DATE			COUNTY	COMPNT	CONN #	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	TRLR QTY	MOVE	PRTC	INJ	G	E							LICNS			
	E	L	G	H	R			CITY	MLG TYP	FIRST STREET	DIRECT	LEGS	TRAF- CNTL	RND BT	SURF	COLL TYP	OWNER	FROM TO	#	TYPE	SVRTY	X							RES			
INVEST	D	C	S	L	K	TIME	URBAN AREA	MILEPNT	SECOND STREET	LOCTN	(#LANES)	DRVWY	LIGHT	SVRTY	V#	VEH TYPE																
02894	N	N	N	N	N	08/06/2012	CLACKAMAS	1 17	2	STRGHT	N	N	CLR	S-1STOP	01	POLCE	0	STRGHT													27,07	
CITY						Mon	WEST LINN	6 0	10TH ST	S	(NONE)	TRF	SIGNAL	N	DRY	REAR		PUBLIC	S	N										000	00	
						12P	PORTLAND UA	6.54	WB EXTO 10TH	03	(02)							PSNGR	CAR		01	DRVR	NONE		49	M	OR-Y	016,026	038	27,07		
																		02	NONE	0	STOP											
																		PRVTE	S	N										011	00	
																		PSNGR	CAR		01	DRVR	INJC		53	M	OR-Y	000	000	000	00	
01073	N	N	N			03/30/2013	CLACKAMAS	1 17	2	STRGHT	N	N	CLR	S-1STOP	01	NONE	0	STRGHT													07	
CITY						Sat	WEST LINN	6 0	10TH ST	S	(NONE)	TRF	SIGNAL	N	DRY	REAR		PRVTE	S	N										000	00	
						3P	PORTLAND UA	6.55	WB ENFR 10TH	03	(03)							PSNGR	CAR		01	DRVR	NONE		34	M	OTH-Y	026	000	000	07	
																		02	NONE	0	STOP											
																		PRVTE	S	N										011	00	
																		PSNGR	CAR		01	DRVR	NONE		19	F	OR-Y	000	000	000	00	
04921	N	N	N			12/22/2010	CLACKAMAS	1 17	2	BRIDGE	N	N	CLR	S-1STOP	01	NONE		STRGHT													07	
NONE						Wed	WEST LINN	6 0	10TH ST	S	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	S	N											000	00	
						6P	PORTLAND UA	6.56	WB ENFR 10TH	03	(04)							PSNGR	CAR		01	DRVR	NONE		40	M	OR-Y	026	000	000	07	
																		02	NONE		STOP											
																		PRVTE	S	N												
																		PSNGR	CAR		01	DRVR	NONE		00	M	OR-Y	000	000	011	00	
00794	N	N	N			02/02/2009	CLACKAMAS	1 17	2	STRGHT	N	N	UNK	S-1STOP	01	NONE	0	STRGHT													07	
NO RPT						Mon	WEST LINN	6 0	10TH ST	S	(NONE)	UNKNOWN	N	UNK	REAR		PRVTE	S	N											000	00	
						1P	PORTLAND UA	6.56	WB EXTO 10TH	08	(02)							PSNGR	CAR		01	DRVR	NONE		21	F	OR-Y	026	000	000	07	
																		02	NONE	0	STOP											
																		PRVTE	S	N										011	00	
																		PSNGR	CAR		01	DRVR	NONE		00	F	UNK	000	000	000	00	
03096	N	N	N			08/21/2012	CLACKAMAS	1 17	2	INTER	CROSS	N	CLR	S-1STOP	01	NONE	0	STRGHT												013	07	
NONE						Tue	WEST LINN	6 0	10TH ST	S		TRF	SIGNAL	N	DRY	REAR		PRVTE	S	N										000	00	
						2P	PORTLAND UA	6.57	WB EXTO 10TH	06	0							PSNGR	CAR		01	DRVR	NONE		20	M	OR-Y	026	000	000	07	
																		02	NONE	0	STOP											
																		PRVTE	S	N										011	013	
																		PSNGR	CAR		01	DRVR	NONE		40	F	OR-Y	000	000	000	00	
																		03	NONE	0	STOP											
																		PRVTE	S	N										022	00	
																		PSNGR	CAR		01	DRVR	NONE		67	M	OR-Y	000	000	000	00	

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

064 EAST PORTLAND FREEWAY

10th Street & I-205 (Hwy 064) Westbound Ramps plus 300 feet
January 1, 2009 through December 31, 2013

SER#	INVEST	S D P R S W E A U C O E L G H R D C S L K	DATE	COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD WTHR RND BT SURF DRVWY LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY MOVE OWNER FROM TO	P#	PRTC TYPE	INJ SVRTY	A S G E X RES	LICNS LOC	PED ERROR	ACTN EVENT	CAUSE		
03497 CITY		N N N N N	09/20/2012 Thu 7P	CLACKAMAS WEST LINN PORTLAND UA	1 17 6 0 6.57	2 10TH ST WB ENFR 10TH	INTER CN 01	CROSS 0	N TRF SIGNAL	N CLR N DRY N DAY	S-OTHER TURN INJ	01 NONE PRVTE PSNGR CAR	0 N W	TURN-R N W	01 02	DRVR PSNG	NONE INJC	42 F 65 F	OTH-Y OR<25	016,006	000 038	27,08 00 27,08
												02 NONE PRVTE PSNGR CAR	0 N W	TURN-R N W	01 01	DRVR NONE	NONE NONE	52 F OR-Y OR<25	000	000	00 00	
03281 CITY		N N Y	09/04/2013 Wed 8P	CLACKAMAS WEST LINN PORTLAND UA	1 17 6 0 6.59	2 10TH ST WB EXTO 10TH	STRGHT N 03	(NONE) (03)	Y TRF SIGNAL	N CLD N DRY N DLIT	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 S N	STRGHT S N	01 02	DRVR NONE	NONE N-RES	37 M OTH-Y N-RES	026	000 000	07 00 07	
												02 NONE PRVTE PSNGR CAR	1 S N	STOP S N	01 01	DRVR NONE	NONE OR-Y OR<25	53 M OR-Y OR<25	000	011 000	00 00	
01563 NONE		N N N	04/29/2012 Sun 12P	CLACKAMAS WEST LINN PORTLAND UA	1 11 6 0 7.00	4 WB EXTO 10TH 10TH ST	STRGHT E 03	(NONE) (01)	N UNKNOWN	N CLR N UNK N DAY	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 E W	STRGHT E W	01 01	DRVR NONE	NONE OR-Y OR<25	42 M OR-Y OR<25	026	000 000	07 00 07	
												02 NONE PRVTE PSNGR CAR	0 E W	STOP E W	01 01	DRVR INJC	NONE OR-Y OR<25	63 F OR-Y OR<25	000	011 000	00 00	
02210 NONE		N N N	06/21/2011 Tue 12P	CLACKAMAS WEST LINN PORTLAND UA	1 19 6 0 7.00	4 WB EXTO 10TH 10TH ST	STRGHT SE 03	(NONE) (01)	N UNKNOWN	N CLR N DRY N DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 SE NW	STRGHT SE NW	01 01	DRVR NONE	NONE OR-Y OR<25	00 F OR-Y OR<25	026	000 000	07 00 07	
												02 NONE PRVTE PSNGR CAR	0 SE NW	STOP SE NW	01 01	DRVR NONE	NONE OR-Y OR<25	62 F OR-Y OR<25	000	011 000	00 00	
02020 NONE		N N N	06/12/2010 Sat 3P	CLACKAMAS WEST LINN PORTLAND UA	1 17 6 0 7.01	4 10TH ST WB EXTO 10TH	INTER SE 06	CROSS 0	N TRF SIGNAL	N CLR N UNK N DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 SE NW	STRGHT SE NW	01 01	DRVR NONE	NONE UNK OR<25	00 M UNK OR<25	026	000 000	07 00 07	
												02 NONE PRVTE PSNGR CAR	0 SE NW	STOP SE NW	01 01	DRVR NONE	NONE OR-Y OR<25	58 F OR-Y OR<25	000	011 000	00 00	

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
10th Street & I-205 (Hwy 064) Westbound Ramps plus 300 feet
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
REAR-END	0	0	2	2	0	0	0	2	0	1	1	0	1	0
2013 TOTAL	0	0	2	2	0	0	0	2	0	1	1	0	1	0
YEAR: 2012														
REAR-END	0	2	1	3	0	2	0	2	0	3	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2012 TOTAL	0	3	1	4	0	3	0	3	0	4	0	2	0	0
YEAR: 2011														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	0	0	0
2011 TOTAL	0	0	1	1	0	0	0	1	0	1	0	0	0	0
YEAR: 2010														
REAR-END	0	0	2	2	0	0	0	1	0	1	1	1	0	0
2010 TOTAL	0	0	2	2	0	0	0	1	0	1	1	1	0	0
YEAR: 2009														
REAR-END	0	0	1	1	0	0	0	0	0	1	0	0	0	0
2009 TOTAL	0	0	1	1	0	0	0	0	0	1	0	0	0	0
FINAL TOTAL	0	3	7	10	0	3	0	7	0	8	2	3	1	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

10th Street & I-205 (Hwy 064) Eastbound Ramps plus 300 feet
January 1, 2009 through December 31, 2013

8/26/15 PC Meeting
488

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

064 EAST PORTLAND FREEWAY

10th Street & I-205 (Hwy 064) Eastbound Ramps plus 300 feet
January 1, 2009 through December 31, 2013

SER#	S D			COUNTY	RD# FC	CONN #	RD CHAR	INT-TYP	INT-REL	OFFRD	WTHR	CRASH TYP	SPCL USE			PRTC	INJ	A S	G E	LICNS	PED	ACTN	EVENT	CAUSE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	P R S W	E A U C O	DATE										TRLR QTY	MOVE	OWNER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	ELGHR	DAY	TIME										FROM	TO	TYPE										SVRTY	EXRES	LOC	ERROR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
INVEST	D C S L K	TIME	URBAN AREA	MILEPNT	FIRST STREET	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	V#	VEH TYPE	P#	TYPE	SVRTY	E X	RES	LOC	ERROR	ACTN	EVENT	CAUSE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
04934 CITY	Y	N	N	N	N	12/19/2012	CLACKAMAS	1	17	2		STRGHT	N			N	RAIN	S-1STOP	01	NONE	0	STRGHT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

064 EAST PORTLAND FREEWAY

10th Street & I-205 (Hwy 064) Eastbound Ramps plus 300 feet
January 1, 2009 through December 31, 2013

SER#	E A U C O DATE	COUNTY	RD# FC	COMPNT	CONN #	RD CHAR	INT-TYP	INT-REL	OFFRD WTHR	CRASH TYP	SPCL USE	MOVE	PRTC	INJ	A S	LICNS	PED	ERROR	ACTN	EVENT	CAUSE
INVEST	D C S L K TIME	URBAN AREA	MILEPNT	FIRST STREET	SECOND STREET	LOCTN	(#LANES)	CNTL	DRVMY LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E X RES	LOC			
											02	NONE	0	TURN-L							
											PRVTE	N E							000		00
											PSNGR	CAR		01	DRVR	NONE	00 M	OR-Y	020,004	000	04
03344	N N N	09/10/2011	CLACKAMAS	1 17	2	STRGHT	N		N CLR	S-1STOP	01	NONE	0	STRGHT							07
NONE	Sat	WEST LINN	6 0	10TH ST		N	(NONE)	UNKNOWN	N DRY	REAR	PRVTE	N S							000		00
	4P	PORTLAND UA	6.47	EB EXTO 10TH		03			N DAY	INJ	PSNGR	CAR		01	DRVR	NONE	24 F	OR-Y	026	000	07
							(02)														
											02	NONE	0	STOP							
											PRVTE	N S								011	00
											PSNGR	CAR		01	DRVR	INJC	48 F	OR-Y	000	000	00

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

10th Street & I-205 (Hwy 064) Eastbound Ramps plus 300 feet
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
REAR-END	0	1	1	2	0	1	0	2	0	0	2	1	1	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	0	1	0	1	1	0	0
2013 TOTAL	0	1	2	3	0	1	0	2	1	0	3	2	1	0
YEAR: 2012														
BACKING	0	0	1	1	0	0	0	1	0	1	0	0	0	0
REAR-END	0	1	1	2	0	1	0	1	1	1	1	0	0	0
2012 TOTAL	0	1	2	3	0	1	0	2	1	2	1	0	0	0
YEAR: 2011														
REAR-END	0	1	0	1	0	1	0	1	0	1	0	0	0	0
2011 TOTAL	0	1	0	1	0	1	0	1	0	1	0	0	0	0
YEAR: 2010														
REAR-END	0	0	1	1	0	0	0	1	0	0	1	1	0	0
2010 TOTAL	0	0	1	1	0	0	0	1	0	0	1	1	0	0
YEAR: 2009														
REAR-END	0	3	0	3	0	4	0	2	1	2	1	2	0	0
2009 TOTAL	0	3	0	3	0	4	0	2	1	2	1	2	0	0
FINAL TOTAL	0	6	5	11	0	7	0	8	3	5	6	5	1	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

10th Street & Blankenship Road/Salamo Road plus 300 feet
January 1, 2009 through December 31, 2013

SER#	S D			DATE	COUNTY	RD# FC		INT-TYP					SPCL USE		A S	G E	LICNS	PED	LOC	ERROR	ACTN	EVENT	CAUSE							
	P R S W					COMPNT	CONN #	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	TRLR QTY										MOVE						
	E A U C O	E L G H R	D A Y			MLG TYP	FIRST STREET	DIRECT	LEGS	TRAF- CNTL	RNDBT	SURF	COLL TYP	OWNER										FROM						
INVEST	D C S L K	TIME	URBAN AREA	MILEPNT	SECOND STREET	LOCTN	(#LANES)			DRVWY	LIGHT	SVRTY	V#	VEH TYPE																
03281	N	N	Y	09/04/2013	CLACKAMAS	1	17	2		STRGHT		Y		N	CLD	S-1STOP	01	NONE	0	STRGHT										
CITY				Wed	WEST LINN		6	0	10TH ST	N		(NONE)	TRF SIGNAL	N	DRY	REAR		PRVTE	S	N			000	00						
				8P	PORTLAND UA		6.59		WB EXT0 10TH	03				N	DLIT	PDO		PSNGR CAR			01	DRVR	NONE	37	M	OTH-Y		026	000	07
												(03)																		

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE
 10th Street & Blankenship Road/Salamo Road plus 300 feet
 January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
REAR-END	0	0	2	2	0	0	0	2	0	0	2	1	1	0
2013 TOTAL	0	0	2	2	0	0	0	2	0	0	2	1	1	0
YEAR: 2009														
REAR-END	0	0	2	2	0	0	0	2	0	2	0	0	0	0
2009 TOTAL	0	0	2	2	0	0	0	2	0	2	0	0	0	0
FINAL TOTAL	0	0	4	4	0	0	0	4	0	2	2	1	1	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

064 EAST PORTLAND FREEWAY

10th Street & 8th Avenue/8th Court plus 300 feet
January 1, 2009 through December 31, 2013

SER#	S P E I N V E S T	D R S W U C O L K	DATE	COUNTY CITY URBAN AREA	RD# MLG MILEPNT	FC TYP TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDDBT DRVMY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E X	S E RES	LICNS LOC	PED ERROR	ACTN EVENT	CAUSE
00143	N N N		01/12/2012	CLACKAMAS	1 17	2		INTER	CROSS	N		N CLR	ANGL-OTH	01 NONE	0	TURN-L								08
NONE			Thu	WEST LINN	6 0		8TH AVE	N		STOP SIGN		N DRY	TURN	PRVTE	W N								015	00
			7P	PORTLAND UA	6.40		10TH ST	05	0			N DLIT	PDO	PSNGR CAR			01	DRVR	NONE	80 M	OR-Y	007	000	08
														02 NONE	0	STRGHT								
														PRVTE	S N								000	00
														PSNGR CAR			01	DRVR	NONE	20 M	OR-Y	000	000	00
00782	N N N		02/28/2009	CLACKAMAS	1 17	2		INTER	CROSS	N		N CLR	ANGL-OTH	01 NONE	0	TURN-L								02
NONE			Sat	WEST LINN	6 0		8TH AVE	CN		STOP SIGN		N DRY	TURN	PRVTE	E S								015	00
			11P	PORTLAND UA	6.40		10TH ST	01	0			N DARK	PDO	PSNGR CAR			01	DRVR	NONE	17 F	OR-Y	028	000	02
														02 NONE	0	STRGHT								
														PRVTE	N S								000	00
														PSNGR CAR			01	DRVR	NONE	62 F	OR-Y	000	000	00
01005	N N N N N		03/17/2009	CLACKAMAS	1 17	2		INTER	CROSS	N		N CLD	ANGL-OTH	01 NONE	0	TURN-L								02
CITY			Tue	WEST LINN	6 0		8TH CT	CN		STOP SIGN		N DRY	TURN	PRVTE	E S								000	00
			3P	PORTLAND UA	6.40		10TH ST	02	0			N DAY	PDO	PSNGR CAR			01	DRVR	NONE	47 M	OR-Y	028	000	02
														02 NONE	0	STRGHT								
														PRVTE	S N								000	00
														PSNGR CAR			01	DRVR	NONE	34 M	OR-Y	000	000	00
02649	N N N		07/29/2010	CLACKAMAS	1 19	2		INTER	CROSS	N		N CLR	ANGL-OTH	01 NONE	0	TURN-L								02
NONE			Thu	WEST LINN	6 0		8TH CT	CN		STOP SIGN		N DRY	TURN	PRVTE	NE SE								000	00
			4P	PORTLAND UA	6.40		10TH ST	03	0			N DAY	PDO	PSNGR CAR			01	DRVR	NONE	00 F	UNK	028	000	02
														02 NONE	0	STRGHT								
														PRVTE	NW SE								000	00
														PSNGR CAR			01	DRVR	NONE	38 M	OR-Y	000	000	00
03642	N N N		10/09/2010	CLACKAMAS	1 17	2		INTER	CROSS	N		N CLD	ANGL-OTH	01 NONE	0	STRGHT								02
CITY			Sat	WEST LINN	6 0		8TH CT	CN		TRF SIGNAL		N WET	TURN	PRVTE	S N								000	00
			9P	PORTLAND UA	6.40		10TH ST	04	0			N DLIT	PDO	PSNGR CAR			01	DRVR	NONE	46 M	OR-Y	000	000	00
														02 NONE	0	TURN-L								
														PRVTE	E S								015	00
														PSNGR CAR			01	DRVR	NONE	20 F	OR-Y	028	000	02
04522	N N N N N		11/29/2010	CLACKAMAS	1 17	2		INTER	CROSS	N		N RAIN	ANGL-OTH	01 NONE		STRGHT								02
CITY			Mon	WEST LINN	6 0		8TH AVE	CN		STOP SIGN		N WET	ANGL	PRVTE	W E								015	00
			5P	PORTLAND UA	6.40		10TH ST	04	0			N DLIT	PDO	PSNGR CAR			01	DRVR	NONE	60 F	OR-Y	028	000	02

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

064 EAST PORTLAND FREEWAY

10th Street & 8th Avenue/8th Court plus 300 feet
January 1, 2009 through December 31, 2013

SER#	E A U C O DATE	COUNTY	RD# FC COMPNT	CONN #	RD CHAR (MEDIAN)	INT-TYP INT-REL	OFFRD WTHR	CRASH TYP COLL TYP	SPCL USE TRLR QTY	MOVE FROM	PRTC INJ	A S G E LICNS	PED LOC	ERROR	ACTN	EVENT	CAUSE
INVEST	D C S L K TIME	URBAN AREA	MILEPNT	FIRST STREET	DIRECT	LEGS	TRAF- CNTL	RNDBT SURF DRVWY LIGHT SVRTY	OWNER	VEH TYPE	TO	E X RES	LOC	ERROR	ACTN	EVENT	CAUSE
									02 NONE PRVTE PSNGR CAR	STRGHT S N					000 000		00 00
											01 DRVR NONE	43 F OR-Y OR<25		000			
03280	NNNNN 09/06/2011	CLACKAMAS	1 19 2		INTER	CROSS	N	N CLR	ANGL-OTH	01 NONE	0 STRGHT					013	02
CITY	Tue	WEST LINN	6 0 8TH CT		CN	STOP SIGN	N DRY	ANGL		PRVTE	NW SE				015		00
	3P	PORTLAND UA	6.40 10TH ST		04	0	N DAY	INJ		PSNGR CAR		01 DRVR NONE	78 M OR-Y OR<25	028	000		02
										02 NONE	0 STRGHT				000	013	00
										PRVTE	SW NE				000		00
										PSNGR CAR		01 DRVR NONE	19 M OR-Y OR<25	000	000		
										03 NONE	0 STOP				011	013	00
										PRVTE	SE NW				000		00
										PSNGR CAR		01 DRVR INJC	30 M OR-Y OR<25	000	000		
										04 NONE	0 STOP				022		00
										PRVTE	SE NW				000		00
										PSNGR CAR		01 DRVR NONE	43 M OR-Y OR>25	000	000		
03481	NNNNN 09/16/2009	CLACKAMAS	1 19 2		STRGHT	N	N CLR	S-1STOP		01 NONE	0 STRGHT						07
CITY	Wed	WEST LINN	6 0 10TH ST		N	(DIVMD) TRF SIGNAL	N DRY	REAR		PRVTE	N S				000		00
	12P	PORTLAND UA	6.41 8TH CT		06	(02)	N DAY	INJ		PSNGR CAR		01 DRVR NONE	24 M OR-Y OR<25	026,043	000		07
										02 NONE	0 STOP						
										PRVTE	N S				011		00
										PSNGR CAR		01 DRVR INJC	49 F OR-Y OR<25	000	000		00
												02 PSNG INJC	24 M	000	000		00
04284	NNNNN 11/05/2013	CLACKAMAS	1 17 2		STRGHT	Y	N CLD	S-1STOP		01 NONE	0 STRGHT						07
CITY	Tue	WEST LINN	6 0 10TH ST		S	(NONE) TRF SIGNAL	N DRY	REAR		PRVTE	S N				000		00
	5P	PORTLAND UA	6.44 EB ENFR 10TH		03	(02)	N DUSK	PDO		PSNGR CAR		01 DRVR NONE	43 M UNK UNK	026	000		07
										02 NONE	0 STOP						
										PRVTE	S N				011		00
										PSNGR CAR		01 DRVR NONE	66 F OR-Y OR<25	000	000		00

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF WEST LINN, CLACKAMAS COUNTY

10th Street & 8th Avenue/8th Court plus 300 feet
January 1, 2009 through December 31, 2013

SER#	S P E D I N V E S T	D R S W A U C O L G H R C S L K	DATE	CLASS	CITY STREET	RD CHAR	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFF-RD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER	MOVE FROM TO	A S G E X RES	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE	
04173 CITY	N	N	N	N	N	11/06/2012 Tue 8A	17 0	8TH AVE 10TH ST	INTER CN 03	CROSS 0	N STOP SIGN N WET N DAWN	ANGL-OTH ANGL PDO	01 NONE PRVTE PSNGR CAR	0 W E	STRGHT N S	01 DRVR	NONE	25 M OR-Y OR<25	028	015 000	02 00 02
												02 NONE PRVTE PSNGR CAR	0 N S	STRGHT N S	01 DRVR	NONE	42 F OR-Y OR<25	000	015 000	00 00	
01337 CITY	N	N	N	N	N	04/19/2013 Fri 4P	19 0	8TH CT 10TH ST	INTER CN 01	CROSS 0	N STOP SIGN N DAY	ANGL-OTH ANGL PDO	01 NONE PRVTE PSNGR CAR	0 E W	STRGHT N S	01 DRVR	NONE	62 F OR-Y OR<25	028	015 000	02 00 02
												02 NONE PRVTE PSNGR CAR	0 N S	STRGHT N S	01 DRVR	NONE	19 M OR-Y OR<25	000	000 000	00 00	
01621 NONE	N	N	N			05/10/2013 Fri 11A	17 0	8TH CT 10TH ST	INTER CN 01	CROSS 0	N TRF SIGNAL N DAY	ANGL-OTH TURN INJ	01 NONE PRVTE PSNGR CAR	0 E S	TURN-L N E	01 DRVR	INJC	65 M OR-Y OR<25	028	015 000	02 00 02
												02 NONE PRVTE PSNGR CAR	0 N E	TURN-L N E	01 DRVR	NONE	58 M OR-Y OR<25	000	000 000	00 00	
04201 NONE	N	N	N			11/07/2012 Wed 6P	17 0	8TH CT 10TH ST	INTER CN 03	CROSS 0	N STOP SIGN N WET N DUSK	ANGL-OTH TURN PDO	01 NONE PRVTE PSNGR CAR	0 E S	TURN-L N S	01 DRVR	NONE	16 F OR-Y OR<25	028	000 000	02 00 02
												02 NONE PRVTE PSNGR CAR	0 N S	STRGHT N S	01 DRVR	NONE	00 M OR-Y OR<25	000	000 000	00 00	
04802 CITY	N	N	N	N	N	12/05/2013 Thu 7P	17 0	8TH CT 10TH ST	INTER CN 04	CROSS 0	N TRF SIGNAL N DLIT	O-1TURN TURN INJ	01 NONE PRVTE PSNGR CAR	0 S N	STRGHT N S	01 DRVR	INJC	46 M OR-Y OR<25	000	000 000	02,08 00 00
												02 NONE PRVTE PSNGR CAR	0 N E	TURN-L N E	01 DRVR	INJC	17 M OR-Y OR<25	028,004	000 000	00 02,08	

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSuing OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NOT VISIBLE: DARK / NON-REFLECTIVE CLOTHING
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1TURN	FROM OPPOSITE DIRECTION - ONE TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNED FROM WRONG LANE
007	TO WRONG	TURNED INTO WRONG LANE
008	ILLEG U	U-TURNED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAYON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLUMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

PEDESTRIAN LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVHRD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH



MEMORANDUM

Date: February 25, 2015

Project #: 17817.0

To: Zach Pelz, City of West Linn
Gail Curtis, Oregon Department of Transportation

From: Susan Wright, Matthew Bell, and Ribeka Toda, Kittelson & Associates, Inc.

Project: West Linn Transportation System Plan (TSP) Update

Subject: Draft Technical Memorandum #7: Draft Transportation System Needs

This memorandum documents the existing and future transportation system needs within the City of West Linn. The information presented in this memorandum is intended to inform the development of the West Linn Transportation System Plan (TSP) which addresses existing system needs and additional facilities that are required to serve future growth. A menu or “toolbox” of solutions to address many of these needs is included in Attachment “A”. Technical Memorandum 10 will include specific solutions to address the transportation system needs identified in this memorandum.

PROJECTED LAND USES

Land use plays an important role in developing a comprehensive transportation system. The amount of land that is planned to be developed, the type of land uses, and how the land uses are mixed together have a direct impact on how the transportation system will be used in the future. Understanding land use is critical to taking actions to maintain or enhance the transportation system.

Land use data for West Linn was provided by Metro. The data includes base year 2010 and forecast year 2040 population, household, and employment (retail, service, and other) estimates for West Linn by Transportation Analysis Zone (TAZ). There are 11 TAZs within West Linn. Figures 1 and 2 illustrate the TAZs and the household and employment changes expected between base year 2010 and forecast year 2040. Table 1 summarizes the TAZ data for base year 2010 and forecast year 2040 conditions. As shown in Table 1, the percent change in population and households over 30 years is anticipated to be less than 1% per year and the growth in employment is anticipated to be approximately 2 % per year.

Table 1: West Linn Land Use Summary

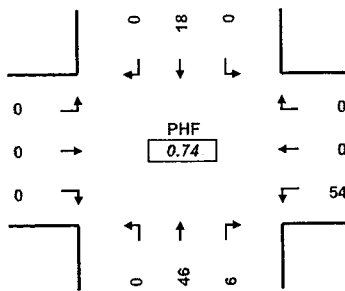
Land Use	2010	2040	Change	Percent Change
Population	25,458	31,471	+6,013	+23.6%
Households	10,252	12,620	+2,368	+23.1%
Employment	4,253	6,913	2,660	+62.5%

INTERSECTION: Summerlinn Dr.--/Office Access--
 PROJECT ID#: 2060016
 QC JOB #: 10142114

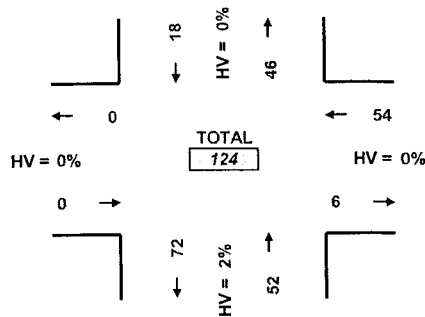
START TIME: 4:00 PM
 END TIME: 6:00 PM
 DATE: 2/2/2006

QC
QUALITY
COUNTS
 16285 SW 85th Avenue, Ste. 105
 Tigard, OR 97224
 Phone: 503-620-4242
 Fax: 503 620-4545
 email: jrw@qualitycounts.net
 www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



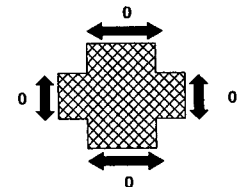
PEAK HOUR LINK VOLUMES



PEAK HOUR: 4:30 PM
 TO
 5:30 PM

PEAK 15 MINUTES: 5:00 PM
 TO
 5:15 PM

PEAK HOUR PED
 CROSSING VOLUMES



5-MINUTE COUNT PERIOD BEGINNING AT	Summerlinn Dr.-- (Southbound)			Office Access-- (Westbound)			Summerlinn Dr.-- (Northbound)			--- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
4:00 PM	0	2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	4	0
4:05 PM	0	3	0	0	0	2	2	6	0	0	0	0	0	0	0	0	13	0
4:10 PM	0	1	0	0	0	1	1	2	0	0	0	0	0	0	0	0	5	0
4:15 PM	0	1	0	0	0	3	0	3	0	0	0	0	0	0	0	0	7	0
4:20 PM	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	3	0
4:25 PM	0	1	0	0	0	3	0	4	0	0	0	0	0	0	0	0	8	0
4:30 PM	0	0	0	0	0	3	3	3	0	0	0	0	0	0	0	0	9	0
4:35 PM	0	2	0	0	0	5	0	3	0	0	0	0	0	0	0	0	10	0
4:40 PM	0	2	0	0	0	6	1	5	0	0	0	0	0	0	0	0	14	0
4:45 PM	0	2	0	0	0	6	0	3	0	0	0	0	0	0	0	0	11	0
4:50 PM	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	5	0
4:55 PM	0	2	0	0	0	7	1	4	0	0	0	0	0	0	0	0	14	0
5:00 PM	0	3	0	0	0	9	0	6	0	0	0	0	0	0	0	0	18	0
5:05 PM	0	0	0	0	0	8	1	2	0	0	0	0	0	0	0	0	11	0
5:10 PM	0	1	0	0	0	6	0	6	0	0	0	0	0	0	0	0	13	0
5:15 PM	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	3	0
5:20 PM	0	1	0	0	0	1	0	4	0	0	0	0	0	0	0	0	6	0
5:25 PM	0	4	0	0	0	2	0	4	0	0	0	0	0	0	0	0	10	0
5:30 PM	0	1	0	0	0	3	0	3	0	0	0	0	0	0	0	0	7	0
5:35 PM	0	2	0	0	0	1	0	8	0	0	0	0	2	0	0	0	11	2
5:40 PM	0	1	0	0	0	0	0	4	0	0	0	0	0	0	0	0	5	0
5:45 PM	0	1	0	0	0	1	0	2	0	0	0	0	0	0	0	0	4	0
5:50 PM	0	3	0	0	0	1	0	5	0	0	0	0	0	0	0	0	9	0
5:55 PM	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
4:00 PM	0	18	0	0	0	39	9	39	0	0	0	0	0	0	0	0	103	0
4:15 PM	0	14	0	0	0	58	7	44	0	0	0	0	0	0	0	0	123	0
4:30 PM	0	18	0	0	0	54	6	46	0	0	0	0	0	0	0	0	124	0
4:45 PM	0	18	0	0	0	44	2	50	0	0	0	0	2	0	0	0	114	2
5:00 PM	0	19	0	0	0	32	1	47	0	0	0	0	2	0	0	0	99	2

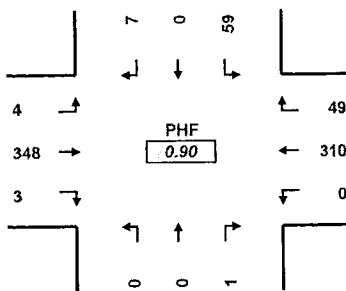
Version 3.1

INTERSECTION: Summerlin Dr.--/Blankenship Rd.--
 PROJECT ID#: 2060016
 QC JOB #: 10142113

START TIME: 4:00 PM
 END TIME: 6:00 PM
 DATE: 2/2/2006

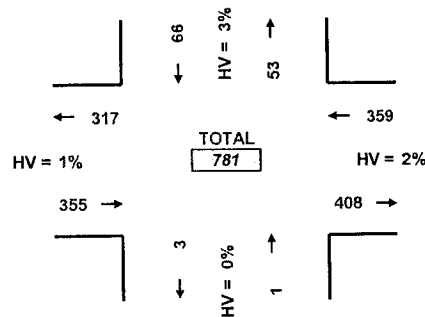
QC
QUALITY COUNTS
 16285 SW 85th Avenue, Ste. 105
 Tigard, OR 97224
 Phone: 503-620-4242
 Fax: 503 620-4545
 email: jrw@qualitycounts.net
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PEAK HOUR TURNING MOVEMENTS



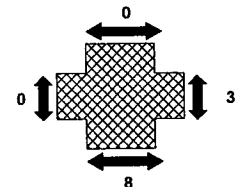
PEAK HOUR: 4:45 PM TO 5:45 PM

PEAK HOUR LINK VOLUMES



PEAK 15 MINUTES: 5:30 PM TO 5:45 PM

PEAK HOUR PED CROSSING VOLUMES



5-MINUTE COUNT PERIOD BEGINNING AT	Summerlin Dr.-- (Southbound)			Blankenship Rd.-- (Westbound)			Summerlin Dr.-- (Northbound)			Blankenship Rd.-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
4:00 PM	0	0	2	1	26	0	0	0	0	0	23	0	0	0	0	0	52	0
4:05 PM	1	0	5	6	27	0	0	0	0	0	14	0	0	0	0	0	53	0
4:10 PM	0	0	1	3	23	0	0	0	0	0	31	1	0	0	0	0	59	0
4:15 PM	2	0	3	2	17	0	0	0	0	0	25	1	0	0	0	0	50	0
4:20 PM	0	0	0	2	23	1	1	0	0	0	19	0	0	0	0	0	46	0
4:25 PM	3	0	2	3	17	0	0	0	0	0	25	1	0	0	0	0	51	0
4:30 PM	0	0	3	2	27	1	1	0	0	1	26	3	0	0	0	0	64	0
4:35 PM	0	0	5	4	15	1	0	0	0	0	34	0	1	0	0	0	59	1
4:40 PM	0	0	11	4	18	0	0	1	0	0	18	1	0	0	0	0	53	0
4:45 PM	0	0	7	3	29	0	0	0	0	0	31	0	0	0	0	0	70	0
4:50 PM	0	0	2	4	29	0	0	0	0	1	24	0	0	0	0	0	60	0
4:55 PM	0	0	7	5	18	0	0	0	0	0	28	0	0	0	4	0	58	4
5:00 PM	2	0	8	4	23	0	0	0	0	1	26	2	0	0	0	0	66	0
5:05 PM	1	0	12	3	27	0	0	0	0	0	26	0	0	0	0	0	69	0
5:10 PM	0	0	7	7	35	0	1	0	0	0	19	0	0	0	0	0	69	0
5:15 PM	0	0	2	1	19	0	0	0	0	0	34	1	0	0	1	0	57	1
5:20 PM	1	0	2	4	24	0	0	0	0	0	29	0	0	0	1	0	60	1
5:25 PM	2	0	2	4	18	0	0	0	0	0	28	0	0	0	0	0	54	0
5:30 PM	1	0	5	3	34	0	0	0	0	0	42	1	0	3	2	0	86	5
5:35 PM	0	0	4	7	25	0	0	0	0	1	30	0	0	0	0	0	67	0
5:40 PM	0	0	1	4	29	0	0	0	0	0	31	0	0	0	0	0	65	0
5:45 PM	1	0	1	2	19	0	0	0	0	0	35	0	0	0	3	0	58	3
5:50 PM	0	0	4	5	27	0	0	0	0	0	17	0	0	0	0	0	53	0
5:55 PM	0	0	1	2	31	0	1	0	0	0	29	0	0	0	0	0	64	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
4:00 PM	6	0	48	39	269	3	2	1	0	2	298	7	1	0	4	0	675	5
4:15 PM	8	0	67	43	278	3	3	1	0	3	301	8	1	0	4	0	715	5
4:30 PM	6	0	68	45	282	2	2	1	0	3	323	7	1	0	6	0	739	7
4:45 PM	7	0	59	49	310	0	1	0	0	3	348	4	0	3	8	0	781	11
5:00 PM	8	0	49	46	311	0	2	0	0	2	346	4	0	3	7	0	768	10

Version 3.1

Albertsons

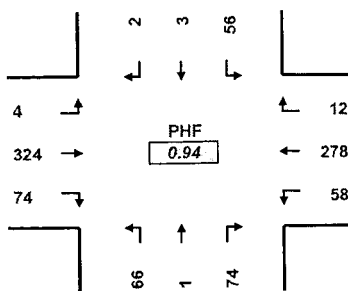
INTERSECTION: Office Access--/Blankenship Rd.--
PROJECT ID#: 2060016
QC JOB #: 10142112

START TIME: 4:00 PM
END TIME: 6:00 PM
DATE: 2/2/2006

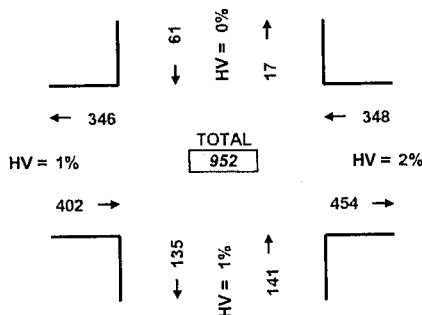


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email: jrw@qualitycounts.net
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PEAK HOUR TURNING MOVEMENTS



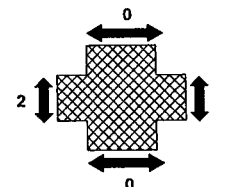
PEAK HOUR LINK VOLUMES



PEAK HOUR: 4:45 PM TO 5:45 PM

PEAK 15 MINUTES: 5:00 PM TO 5:15 PM

PEAK HOUR PED CROSSING VOLUMES



5-MINUTE COUNT PERIOD BEGINNING AT	Office Access-- (Southbound)			Blankenship Rd.-- (Westbound)			Albertsons Access-- (Northbound)			Blankenship Rd.-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
4:00 PM	0	0	4	0	23	8	4	0	5	3	17	1	0	0	0	0	65	0
4:05 PM	0	0	2	0	19	3	4	0	5	8	15	0	0	0	0	0	56	0
4:10 PM	2	0	5	2	25	3	7	0	10	4	20	0	0	0	0	0	78	0
4:15 PM	0	0	2	0	19	3	7	0	1	5	28	0	0	0	0	0	65	0
4:20 PM	0	0	4	2	18	6	7	0	5	3	14	0	0	0	0	0	59	0
4:25 PM	0	0	2	0	16	4	3	0	3	2	27	0	0	1	0	0	57	1
4:30 PM	0	0	4	6	17	4	5	0	10	4	23	0	0	0	0	0	73	0
4:35 PM	0	2	1	2	18	1	3	0	2	4	28	0	0	0	0	0	61	0
4:40 PM	0	1	2	1	20	6	5	0	3	8	27	0	0	0	0	0	73	0
4:45 PM	0	0	1	1	22	5	5	0	6	8	34	0	0	0	0	0	82	0
4:50 PM	0	1	2	3	24	2	5	0	8	6	20	0	0	1	0	0	71	1
4:55 PM	0	0	8	4	23	1	7	0	8	6	24	0	0	0	0	0	81	0
5:00 PM	1	0	8	1	18	6	5	0	2	5	26	1	0	0	0	1	73	1
5:05 PM	0	1	10	1	24	8	6	0	8	4	34	1	0	0	0	1	97	1
5:10 PM	0	0	7	0	31	6	2	0	7	7	23	1	0	0	0	0	84	0
5:15 PM	0	1	1	2	18	9	4	1	4	4	24	0	0	0	0	0	68	0
5:20 PM	0	0	4	0	18	5	9	0	5	6	30	0	0	0	0	0	77	0
5:25 PM	0	0	1	0	24	3	9	0	2	6	21	0	0	0	0	0	66	0
5:30 PM	0	0	5	0	30	3	8	0	5	9	30	0	0	0	0	0	90	0
5:35 PM	1	0	5	0	22	6	4	0	7	9	29	1	0	0	0	0	84	0
5:40 PM	0	0	4	0	24	4	10	0	4	4	29	0	0	0	0	0	79	0
5:45 PM	0	0	4	0	20	6	11	0	3	4	28	0	0	0	0	0	76	0
5:50 PM	0	0	1	0	21	2	3	0	4	5	26	0	0	0	0	0	62	0
5:55 PM	0	0	3	0	28	3	6	0	11	3	16	0	0	0	0	0	70	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
4:00 PM	2	4	37	21	244	46	62	0	66	61	277	1	0	2	0	0	821	2
4:15 PM	1	5	51	21	250	52	60	0	63	62	308	3	0	2	0	2	876	4
4:30 PM	1	6	49	21	257	56	65	1	65	68	314	3	0	1	0	2	906	3
4:45 PM	2	3	56	12	278	58	74	1	66	74	324	4	0	1	0	2	952	3
5:00 PM	2	2	53	4	278	61	77	1	62	66	316	4	0	0	0	2	926	2

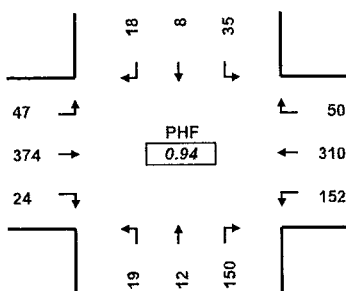
Version 3.1

INTERSECTION: Tannler--/Blankenship Rd.--
 PROJECT ID#: 2060016
 QC JOB #: 10142111

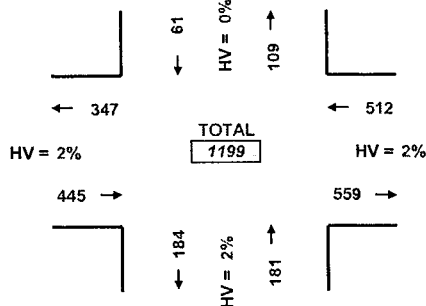
START TIME: 4:00 PM
 END TIME: 6:00 PM
 DATE: 2/2/2006

QC
QUALITY COUNTS
 16285 SW 85th Avenue, Ste. 105
 Tigard, OR 97224
 Phone: 503-620-4242
 Fax: 503-620-4545
 email: jrw@qualitycounts.net
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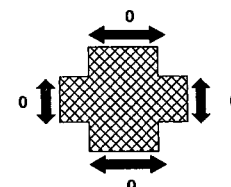
PEAK HOUR TURNING MOVEMENTS



PEAK HOUR LINK VOLUMES



PEAK HOUR PED
 CROSSING VOLUMES



PEAK HOUR: 5:00 PM
 TO
 6:00 PM

PEAK 15 MINUTES: 5:30 PM
 TO
 5:45 PM

5-MINUTE COUNT PERIOD BEGINNING AT	Tannler-- (Southbound)			Blankenship Rd.-- (Westbound)			Tannler-- (Northbound)			Blankenship Rd.-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
4:00 PM	2	0	2	2	22	11	9	1	1	0	26	4	0	0	0	0	80	0
4:05 PM	2	1	5	3	18	9	15	2	0	0	14	1	0	0	0	0	70	0
4:10 PM	1	1	5	6	21	5	6	0	2	2	34	2	0	0	0	0	85	0
4:15 PM	2	0	3	2	16	10	7	1	2	1	29	3	0	0	0	0	76	0
4:20 PM	1	1	3	2	24	16	12	0	0	0	31	1	0	0	0	0	91	0
4:25 PM	2	0	3	2	20	14	9	2	1	1	25	4	0	0	0	0	83	0
4:30 PM	0	0	5	6	21	15	9	0	1	2	34	1	0	0	0	0	94	0
4:35 PM	2	0	5	6	21	13	10	3	1	0	21	6	0	0	0	0	88	0
4:40 PM	1	0	3	7	18	14	9	0	1	1	31	5	0	0	0	0	90	0
4:45 PM	5	0	6	8	28	16	8	4	2	0	28	0	0	0	0	0	105	0
4:50 PM	3	0	4	6	23	12	15	0	1	1	31	3	0	0	0	0	99	0
4:55 PM	3	1	1	6	24	13	6	0	0	1	30	2	0	0	0	0	87	0
5:00 PM	3	0	1	3	19	13	12	1	0	3	32	4	0	0	0	0	91	0
5:05 PM	2	0	3	5	31	5	12	1	1	3	51	5	0	0	0	0	119	0
5:10 PM	0	2	3	2	35	22	14	0	0	3	25	2	0	0	0	0	108	0
5:15 PM	1	1	1	4	27	14	13	2	1	1	32	2	0	0	0	0	99	0
5:20 PM	4	0	1	3	22	9	8	2	1	1	37	5	0	0	0	0	93	0
5:25 PM	2	1	1	4	24	10	10	1	0	1	20	2	0	0	0	0	76	0
5:30 PM	0	0	3	3	32	15	7	0	1	3	32	5	0	0	0	0	101	0
5:35 PM	1	0	6	4	24	12	10	0	2	1	31	1	0	0	0	0	92	0
5:40 PM	1	0	2	5	30	17	21	3	4	0	40	4	0	0	0	0	127	0
5:45 PM	2	1	2	6	25	10	17	2	1	2	37	7	0	0	0	0	112	0
5:50 PM	1	0	6	5	19	16	9	0	3	6	22	4	0	0	0	0	91	0
5:55 PM	1	3	6	6	22	9	17	0	5	0	15	6	0	0	0	0	90	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
4:00 PM	24	4	45	56	256	148	115	13	12	9	334	32	0	0	0	0	1048	0
4:15 PM	24	4	40	55	280	163	123	12	10	16	368	36	0	0	0	0	1131	0
4:30 PM	26	5	34	60	293	156	126	14	9	17	372	37	0	0	0	0	1149	0
4:45 PM	25	5	32	53	319	158	136	14	13	18	389	35	0	0	0	0	1197	0
5:00 PM	18	8	35	50	310	152	150	12	19	24	374	47	0	0	0	0	1199	0

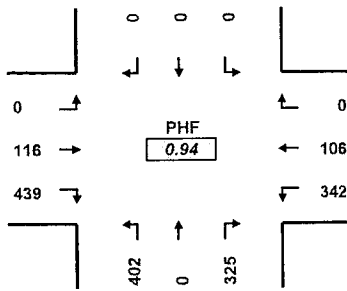
Version 3.1

INTERSECTION: Trees (10th St)--/Blankenship Rd.--
 PROJECT ID#: 2060016
 QC JOB #: 10142110

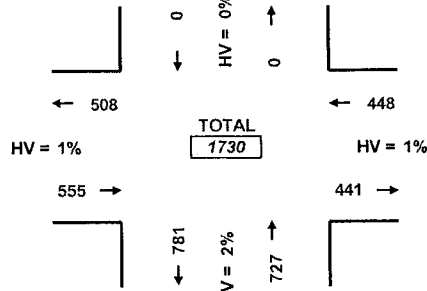
START TIME: 4:00 PM
 END TIME: 6:00 PM
 DATE: 2/2/2006

QC
QUALITY COUNTS
 16285 SW 85th Avenue, Ste. 105
 Tigard, OR 97224
 Phone: 503-620-4242
 Fax: 503 620-4545
 email: jrw@qualitycounts.net
 www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



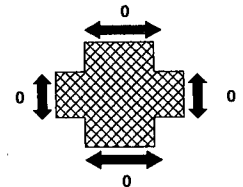
PEAK HOUR LINK VOLUMES



PEAK HOUR: 5:00 PM TO 6:00 PM

PEAK 15 MINUTES: 5:30 PM TO 5:45 PM

PEAK HOUR PED CROSSING VOLUMES



5-MINUTE COUNT PERIOD BEGINNING AT	Trees (10th St)-- (Southbound)			Blankenship Rd.-- (Westbound)			10th St.-- (Northbound)			Blankenship Rd.-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
4:00 PM	0	0	0	0	5	15	22	0	32	29	7	0	0	0	0	0	110	0
4:05 PM	0	0	0	0	8	22	15	0	26	28	6	0	0	0	0	0	105	0
4:10 PM	0	0	0	0	4	12	28	0	34	41	4	0	0	0	0	0	123	0
4:15 PM	0	0	0	0	9	25	20	0	21	29	10	0	0	0	1	0	114	1
4:20 PM	0	0	0	0	9	28	21	0	33	35	12	0	0	0	0	0	138	0
4:25 PM	0	0	0	0	11	14	23	0	25	28	9	0	0	0	0	0	110	0
4:30 PM	0	0	0	0	6	28	19	0	37	38	9	0	0	0	0	0	137	0
4:35 PM	0	0	0	0	9	28	20	0	31	29	6	0	0	0	0	0	123	0
4:40 PM	0	0	0	0	9	15	25	0	34	35	8	0	0	0	0	0	126	0
4:45 PM	0	0	0	0	7	28	25	0	38	38	4	0	0	0	0	0	140	0
4:50 PM	0	0	0	0	6	21	15	0	38	39	11	0	0	0	0	0	130	0
4:55 PM	0	0	0	0	4	15	29	0	35	30	7	0	0	0	0	0	120	0
5:00 PM	0	0	0	0	7	33	22	0	32	36	9	0	0	0	0	0	139	0
5:05 PM	0	0	0	0	10	30	24	0	32	50	15	0	0	0	0	0	161	0
5:10 PM	0	0	0	0	20	28	30	0	39	35	7	0	0	0	0	0	159	0
5:15 PM	0	0	0	0	8	23	20	0	35	35	10	0	0	0	0	0	131	0
5:20 PM	0	0	0	0	4	25	30	0	26	34	11	0	0	0	0	0	130	0
5:25 PM	0	0	0	0	7	28	24	0	29	24	7	0	0	0	0	0	119	0
5:30 PM	0	0	0	0	8	29	23	0	44	30	11	0	0	0	0	0	145	0
5:35 PM	0	0	0	0	5	21	33	0	41	41	6	0	0	0	0	0	147	0
5:40 PM	0	0	0	0	14	35	31	0	27	51	12	0	0	0	0	0	170	0
5:45 PM	0	0	0	0	10	31	26	0	33	38	18	0	0	0	0	0	156	0
5:50 PM	0	0	0	0	5	27	34	0	36	33	4	0	0	0	0	0	139	0
5:55 PM	0	0	0	0	8	32	28	0	28	32	6	0	0	0	0	0	134	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
4:00 PM	0	0	0	0	87	251	262	0	384	399	93	0	0	0	1	0	1476	1
4:15 PM	0	0	0	0	107	293	273	0	395	422	107	0	0	0	1	0	1597	1
4:30 PM	0	0	0	0	97	302	283	0	406	423	104	0	0	0	0	0	1615	0
4:45 PM	0	0	0	0	100	316	306	0	416	443	110	0	0	0	0	0	1691	0
5:00 PM	0	0	0	0	106	342	325	0	402	439	116	0	0	0	0	0	1730	0

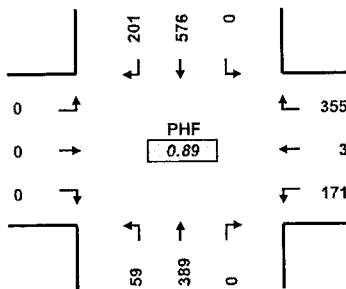
Version 3.1

INTERSECTION: 10th St--I-205 SB Ramp--
 PROJECT ID#: 2060016
 QC JOB #: 10142109

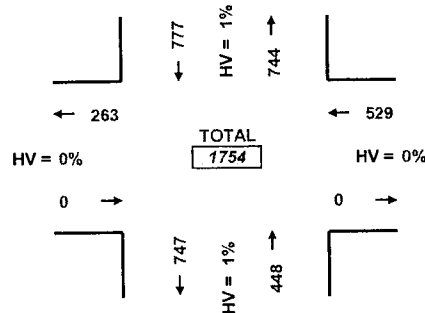
START TIME: 4:00 PM
 END TIME: 6:00 PM
 DATE: 2/2/2006

QC
QUALITY
COUNTS
 16285 SW 85th Avenue, Ste. 105
 Tigard, OR 97224
 Phone: 503-620-4242
 Fax: 503 620-4545
 email: jrw@qualitycounts.net
 www.qualitycounts.net

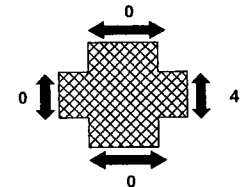
PEAK HOUR TURNING MOVEMENTS



PEAK HOUR LINK VOLUMES



PEAK HOUR PED
 CROSSING VOLUMES



PEAK HOUR: 5:00 PM
 TO
 6:00 PM

PEAK 15 MINUTES: 5:30 PM
 TO
 5:45 PM

5-MINUTE COUNT PERIOD BEGINNING AT	10th St-- (Southbound)			I-205 SB Ramp-- (Westbound)			10th St-- (Northbound)			I-205 SB Ramp-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
4:00 PM	14	30	0	25	0	14	0	20	7	0	0	0	0	0	0	0	110	0
4:05 PM	14	35	0	15	0	20	0	21	3	0	0	0	0	0	0	0	108	0
4:10 PM	15	38	0	24	0	15	0	36	3	0	0	0	0	0	0	0	131	0
4:15 PM	17	36	0	16	1	14	0	33	7	0	0	0	0	0	0	0	124	0
4:20 PM	21	42	0	26	1	16	0	24	8	0	0	0	0	0	0	0	138	0
4:25 PM	9	32	0	16	0	14	0	26	5	0	0	0	0	0	0	0	102	0
4:30 PM	16	50	0	13	0	9	0	35	5	0	0	0	0	0	0	0	128	0
4:35 PM	23	34	0	23	0	23	0	21	4	0	0	0	0	0	0	0	128	0
4:40 PM	13	37	0	33	0	12	0	22	5	0	0	0	0	0	0	0	122	0
4:45 PM	14	52	0	18	0	23	0	31	2	0	0	0	0	0	0	0	140	0
4:50 PM	11	49	0	23	1	13	0	22	5	0	0	0	0	0	0	0	124	0
4:55 PM	14	30	0	26	0	9	0	32	3	0	0	0	0	0	0	0	114	0
5:00 PM	19	50	0	29	0	12	0	24	6	0	0	0	0	0	0	0	140	0
5:05 PM	19	60	0	44	0	10	0	24	4	0	0	0	0	0	0	0	161	0
5:10 PM	20	43	0	30	0	13	0	23	7	0	0	0	0	0	0	0	136	0
5:15 PM	15	42	0	30	0	17	0	37	5	0	0	0	0	0	0	0	146	0
5:20 PM	19	39	0	20	1	12	0	37	2	0	0	0	0	0	0	0	130	0
5:25 PM	19	33	0	25	0	19	0	30	2	0	0	0	0	0	0	0	128	0
5:30 PM	17	43	0	32	0	15	0	37	4	0	0	0	0	4	0	0	148	4
5:35 PM	17	44	0	28	0	18	0	49	9	0	0	0	0	0	0	0	165	0
5:40 PM	18	68	0	36	1	18	0	35	4	0	0	0	0	0	0	0	180	0
5:45 PM	18	50	0	23	0	17	0	22	3	0	0	0	0	0	0	0	133	0
5:50 PM	10	49	0	29	1	10	0	34	7	0	0	0	0	0	0	0	140	0
5:55 PM	10	55	0	29	0	10	0	37	6	0	0	0	0	0	0	0	147	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
4:00 PM	181	465	0	258	3	182	0	323	57	0	0	0	0	0	0	0	1469	0
4:15 PM	196	515	0	297	3	168	0	317	61	0	0	0	0	0	0	0	1557	0
4:30 PM	202	519	0	314	2	172	0	338	50	0	0	0	0	0	0	0	1597	0
4:45 PM	202	553	0	341	3	179	0	381	53	0	0	0	0	4	0	0	1712	4
5:00 PM	201	576	0	355	3	171	0	389	59	0	0	0	0	4	0	0	1754	4

Version 3.1

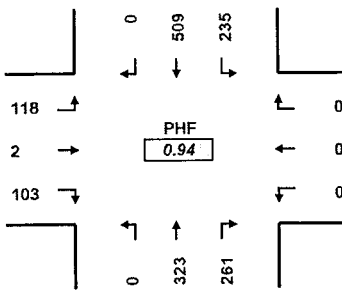
INTERSECTION: 10th St.--/I-205 NB Ramp--
 PROJECT ID#: 2060016
 QC JOB #: 10142108

START TIME: 4:00 PM
 END TIME: 6:00 PM
 DATE: 2/2/2006



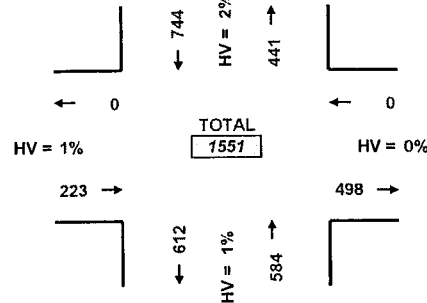
16285 SW 85th Avenue, Ste. 105
 Tigard, OR 97224
 Phone: 503-620-4242
 Fax: 503 620-4545
 email: jrw@qualitycounts.net
 www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



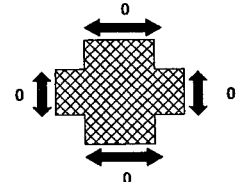
PEAK HOUR: 5:00 PM TO 6:00 PM

PEAK HOUR LINK VOLUMES



PEAK 15 MINUTES: 5:30 PM TO 5:45 PM

PEAK HOUR PED CROSSING VOLUMES



5-MINUTE COUNT PERIOD BEGINNING AT	10th St.-- (Southbound)			I-205 NB Ramp-- (Westbound)			10th St.-- (Northbound)			I-205 NB Ramp-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
4:00 PM	0	32	13	0	0	0	18	21	0	8	0	6	0	0	0	0	98	0
4:05 PM	0	42	14	0	0	0	19	19	0	13	0	8	0	0	0	0	115	0
4:10 PM	0	37	16	0	0	0	23	28	0	6	0	7	0	0	0	0	117	0
4:15 PM	0	35	16	0	0	0	28	19	0	8	0	12	0	0	0	0	118	0
4:20 PM	0	37	22	0	0	0	22	22	0	7	0	5	0	0	0	0	115	0
4:25 PM	0	30	17	0	0	0	32	26	0	5	0	6	0	0	1	0	116	1
4:30 PM	0	36	23	0	0	0	26	29	0	6	0	5	0	0	0	0	125	0
4:35 PM	0	40	18	0	0	0	20	21	0	4	0	6	0	0	0	0	109	0
4:40 PM	0	35	14	0	0	0	16	27	0	7	0	7	0	0	0	0	106	0
4:45 PM	0	46	29	0	0	0	29	30	0	9	0	4	0	0	0	0	147	0
4:50 PM	0	36	16	0	0	0	22	19	0	13	0	9	0	0	0	0	115	0
4:55 PM	0	39	21	0	0	0	21	30	0	5	0	6	0	0	1	0	122	1
5:00 PM	0	34	22	0	0	0	23	31	0	6	0	11	0	0	0	0	127	0
5:05 PM	0	37	27	0	0	0	22	22	0	12	0	10	0	0	0	0	130	0
5:10 PM	0	36	16	0	0	0	22	27	0	3	0	7	0	0	0	0	111	0
5:15 PM	0	49	18	0	0	0	30	28	0	9	0	4	0	0	0	0	138	0
5:20 PM	0	32	19	0	0	0	26	30	0	6	0	8	0	0	0	0	121	0
5:25 PM	0	40	12	0	0	0	34	25	0	7	0	4	0	0	0	0	122	0
5:30 PM	0	33	25	0	0	0	26	22	0	8	0	14	0	0	0	0	128	0
5:35 PM	0	42	21	0	0	0	18	27	0	16	1	16	0	0	0	0	141	0
5:40 PM	0	66	20	0	0	0	21	23	0	6	0	9	0	0	0	0	145	0
5:45 PM	0	53	15	0	0	0	12	27	0	12	0	11	0	0	0	0	130	0
5:50 PM	0	40	22	0	0	0	13	40	0	8	1	7	0	0	0	0	131	0
5:55 PM	0	47	18	0	0	0	14	21	0	10	0	17	0	0	0	0	127	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
4:00 PM	0	445	219	0	0	0	276	291	0	91	0	81	0	0	2	0	1403	2
4:15 PM	0	441	241	0	0	0	283	303	0	85	0	88	0	0	2	0	1441	2
4:30 PM	0	460	235	0	0	0	291	319	0	87	0	81	0	0	1	0	1473	1
4:45 PM	0	490	246	0	0	0	294	314	0	100	1	102	0	0	1	0	1547	1
5:00 PM	0	509	235	0	0	0	261	323	0	103	2	118	0	0	0	0	1551	0

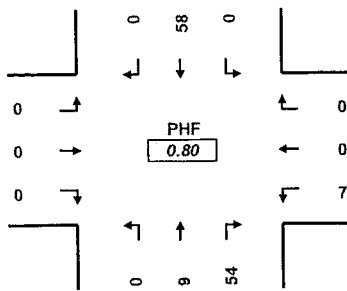
Version 3.1

INTERSECTION: Summerlinn Dr--/Office Access--
 PROJECT ID#: 2060016
 QC JOB #: 10142107

START TIME: 7:00 AM
 END TIME: 9:00 AM
 DATE: 2/2/2006

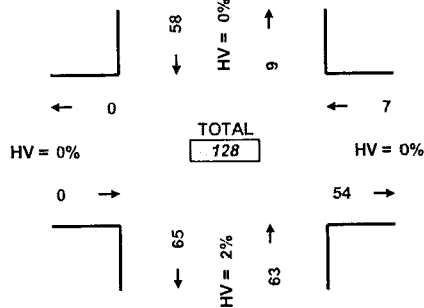
QC
QUALITY COUNTS
 16285 SW 85th Avenue, Ste. 105
 Tigard, OR 97224
 Phone: 503-620-4242
 Fax: 503 620-4545
 email: jrw@qualitycounts.net
 www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



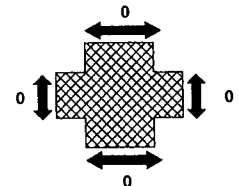
PEAK HOUR: 7:30 AM TO 8:30 AM

PEAK HOUR LINK VOLUMES



PEAK 15 MINUTES: 7:45 AM TO 8:00 AM

PEAK HOUR PED CROSSING VOLUMES



5-MINUTE COUNT PERIOD BEGINNING AT	Summerlinn Dr-- (Southbound)			Office Access-- (Westbound)			Summerlinn Dr-- (Northbound)			Buildings-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	3	0	0	0	1	5	3	0	0	0	0	0	0	0	0	12	0
7:05 AM	0	5	0	0	0	1	2	0	0	0	0	0	0	0	0	0	8	0
7:10 AM	0	7	1	0	0	0	0	1	0	0	0	0	0	0	0	0	9	0
7:15 AM	0	5	0	0	0	0	2	1	0	0	0	0	0	0	0	0	8	0
7:20 AM	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	8	0
7:25 AM	0	6	0	0	0	1	3	0	0	0	0	0	0	0	0	0	10	0
7:30 AM	0	5	0	0	0	0	4	0	0	0	0	0	0	0	0	0	9	0
7:35 AM	0	10	0	0	0	0	1	0	0	0	0	0	0	0	0	0	11	0
7:40 AM	0	5	0	0	0	1	5	1	0	0	0	0	0	0	0	0	12	0
7:45 AM	0	1	0	0	0	0	5	2	0	0	0	0	0	0	0	0	8	0
7:50 AM	0	8	0	0	0	0	10	0	0	0	0	0	0	0	0	0	18	0
7:55 AM	0	3	0	0	0	1	8	2	0	0	0	0	0	0	0	0	14	0
8:00 AM	0	3	0	0	0	2	5	0	0	0	0	0	0	0	0	0	10	0
8:05 AM	0	5	0	0	0	0	2	0	0	0	0	0	0	0	0	0	7	0
8:10 AM	0	4	0	0	0	1	2	0	0	0	0	0	0	0	0	0	7	0
8:15 AM	0	5	0	0	0	0	6	2	0	0	0	0	0	0	0	0	13	0
8:20 AM	0	6	0	0	0	0	2	1	0	0	0	0	0	0	0	0	9	0
8:25 AM	0	3	0	0	0	2	4	1	0	0	0	0	0	0	0	0	10	0
8:30 AM	0	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	6	0
8:35 AM	0	5	0	0	0	0	3	0	0	0	0	0	0	0	0	0	8	0
8:40 AM	0	4	0	0	0	1	3	1	0	0	0	0	0	0	0	0	9	0
8:45 AM	0	1	0	0	0	0	2	1	0	0	0	0	0	0	0	0	4	0
8:50 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0
8:55 AM	0	1	0	0	0	0	8	0	0	0	0	0	0	0	0	0	9	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	0	62	1	0	0	5	49	10	0	0	0	0	0	0	0	0	127	0
7:15 AM	0	59	0	0	0	6	51	6	0	0	0	0	0	0	0	0	122	0
7:30 AM	0	58	0	0	0	7	54	9	0	0	0	0	0	0	0	0	128	0
7:45 AM	0	52	0	0	0	7	51	9	0	0	0	0	0	0	0	0	119	0
8:00 AM	0	43	0	0	0	7	38	6	0	0	0	0	0	0	0	0	94	0

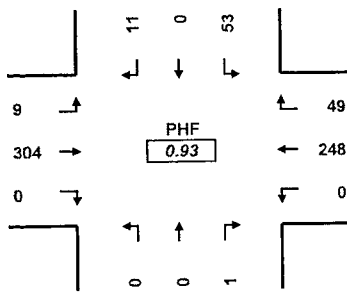
Version 3.1

INTERSECTION: Blankenship Rd.--/Summerlin Dr.--
 PROJECT ID#: 2060016
 QC JOB #: 10142106

START TIME: 7:00 AM
 END TIME: 9:00 AM
 DATE: 2/2/2006

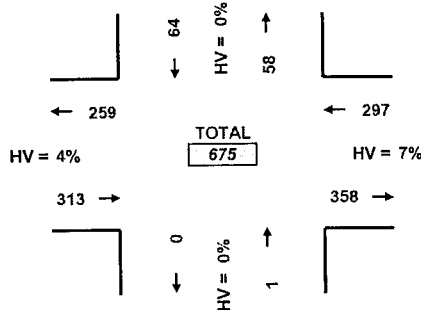
QC
QUALITY COUNTS
 16285 SW 85th Avenue, Ste. 105
 Tigard, OR 97224
 Phone: 503-620-4242
 Fax: 503-620-4545
 email: jrw@qualitycounts.net
 www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



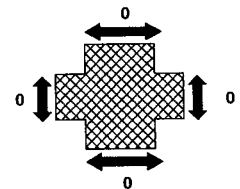
PEAK HOUR: 7:15 AM TO 8:15 AM

PEAK HOUR LINK VOLUMES



PEAK 15 MINUTES: 7:45 AM TO 8:00 AM

PEAK HOUR PED CROSSING VOLUMES



5-MINUTE COUNT PERIOD BEGINNING AT	Blankenship Rd.-- (Southbound)			Summerlin Dr.-- (Westbound)			Blankenship Rd.-- (Northbound)			Summerlin Dr.-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	0	4	5	9	0	0	0	0	0	18	2	0	0	0	0	38	0
7:05 AM	0	0	6	2	6	0	0	0	0	0	29	0	0	0	0	0	43	0
7:10 AM	1	0	6	1	13	0	0	0	0	0	32	0	0	0	0	0	53	0
7:15 AM	2	0	4	3	18	0	0	0	0	0	28	2	0	0	0	0	57	0
7:20 AM	0	0	3	2	10	0	0	0	0	0	22	0	0	0	0	0	37	0
7:25 AM	1	0	6	3	13	0	0	0	0	0	30	0	0	0	0	0	53	0
7:30 AM	3	0	4	4	13	0	0	0	0	0	32	1	0	0	0	0	57	0
7:35 AM	2	0	8	2	17	0	0	0	0	0	33	0	0	0	0	0	62	0
7:40 AM	0	0	4	6	22	0	1	0	0	0	27	0	0	0	0	0	60	0
7:45 AM	1	0	0	10	25	0	0	0	0	0	18	0	0	0	0	0	54	0
7:50 AM	0	0	7	7	32	0	0	0	0	0	26	1	0	0	0	0	73	0
7:55 AM	0	0	5	5	22	0	0	0	0	0	19	3	0	0	0	0	54	0
8:00 AM	0	0	5	3	27	0	0	0	0	0	26	0	0	0	0	0	61	0
8:05 AM	0	0	4	1	23	0	0	0	0	0	20	1	0	0	0	0	49	0
8:10 AM	2	0	3	3	26	0	0	0	0	0	23	1	0	0	0	0	58	0
8:15 AM	1	0	4	6	17	0	0	0	0	0	19	0	0	0	0	0	47	0
8:20 AM	2	0	5	2	22	1	0	0	0	0	15	4	0	0	0	0	51	0
8:25 AM	0	0	6	3	18	0	0	0	0	0	20	0	0	0	0	0	47	0
8:30 AM	0	0	3	2	21	0	0	0	0	0	21	0	0	0	0	0	47	0
8:35 AM	0	0	4	4	23	0	0	0	0	0	20	0	0	0	0	0	51	0
8:40 AM	2	0	3	2	22	0	0	0	0	0	21	0	0	0	0	0	50	0
8:45 AM	0	0	1	2	11	0	1	0	0	0	9	0	0	0	0	0	24	0
8:50 AM	1	0	1	1	15	0	0	0	0	0	18	2	0	0	0	0	38	0
8:55 AM	0	0	1	5	10	0	0	0	0	0	12	2	0	0	0	0	30	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	10	0	57	50	200	0	1	0	0	0	314	9	0	0	0	0	641	0
7:15 AM	11	0	53	49	248	0	1	0	0	0	304	9	0	0	0	0	675	0
7:30 AM	11	0	55	52	264	1	1	0	0	0	278	11	0	0	0	0	673	0
7:45 AM	8	0	49	48	278	1	0	0	0	0	248	10	0	0	0	0	642	0
8:00 AM	8	0	40	34	235	1	1	0	0	0	224	10	0	0	0	0	553	0

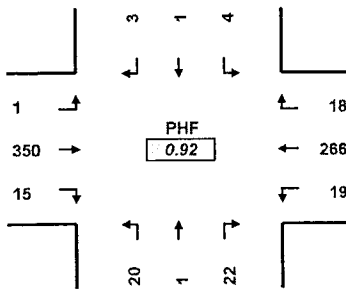
Version 3.1

INTERSECTION: Albertsons--/Blankenship--
 PROJECT ID#: 2060016
 QC JOB #: 10142105

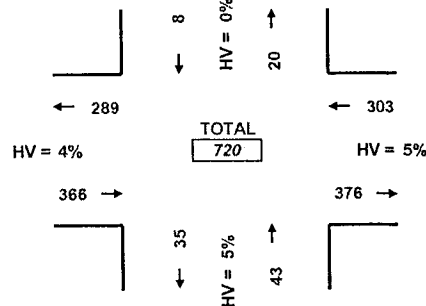
START TIME: 7:00 AM
 END TIME: 9:00 AM
 DATE: 2/2/2006

QC
QUALITY COUNTS
 16285 SW 85th Avenue, Ste. 105
 Tigard, OR 97224
 Phone: 503-620-4242
 Fax: 503 620-4545
 email: jrw@qualitycounts.net
 www.qualitycounts.net

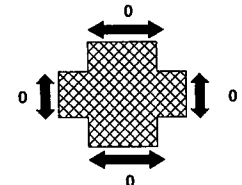
PEAK HOUR TURNING MOVEMENTS



PEAK HOUR LINK VOLUMES



PEAK HOUR PED
 CROSSING VOLUMES



PEAK HOUR: 7:15 AM
 TO 8:15 AM

PEAK 15 MINUTES: 7:30 AM
 TO 7:45 AM

5-MINUTE COUNT PERIOD BEGINNING AT	Albertsons-- (Southbound)			Blankenship-- (Westbound)			Albertsons-- (Northbound)			Blankenship-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	0	0	2	10	0	0	0	3	2	18	0	0	0	0	0	35	0
7:05 AM	0	0	1	1	7	1	2	0	1	3	39	0	0	0	0	0	55	0
7:10 AM	0	0	0	0	14	2	0	0	1	4	33	0	0	0	0	0	54	0
7:15 AM	0	0	0	1	18	0	3	0	2	2	30	0	0	0	0	0	56	0
7:20 AM	0	0	0	2	13	0	1	0	0	0	27	0	0	0	0	0	43	0
7:25 AM	0	0	0	3	14	4	2	0	2	1	38	0	0	0	0	0	64	0
7:30 AM	0	0	1	7	14	2	5	0	3	1	32	0	0	0	0	0	65	0
7:35 AM	0	0	0	0	18	1	0	1	0	2	38	1	0	0	0	0	61	0
7:40 AM	1	0	1	2	24	4	1	0	2	3	32	0	0	0	0	0	70	0
7:45 AM	0	0	0	2	27	1	1	0	6	0	18	0	0	0	0	0	55	0
7:50 AM	1	0	0	1	32	0	3	0	3	1	31	0	0	0	0	0	72	0
7:55 AM	0	0	0	0	27	0	2	0	0	0	24	0	0	0	0	0	53	0
8:00 AM	1	0	1	0	30	1	1	0	0	1	31	0	0	0	0	0	66	0
8:05 AM	0	1	0	0	21	3	2	0	2	2	23	0	0	0	0	0	54	0
8:10 AM	0	0	1	0	28	3	1	0	0	2	26	0	0	0	0	0	61	0
8:15 AM	0	0	0	0	22	1	3	1	1	1	18	0	0	0	0	0	47	0
8:20 AM	0	0	0	0	22	1	2	1	2	0	23	0	0	0	0	0	51	0
8:25 AM	0	1	0	0	20	5	3	0	0	3	22	0	0	0	0	0	54	0
8:30 AM	0	0	1	0	21	2	6	2	2	3	23	0	0	0	0	0	60	0
8:35 AM	1	0	1	1	23	1	1	0	1	2	27	0	0	0	0	0	58	0
8:40 AM	0	0	2	2	21	2	0	0	1	2	22	0	0	0	0	0	52	0
8:45 AM	0	1	0	0	13	1	1	0	0	1	13	2	0	0	0	0	32	0
8:50 AM	0	0	1	5	14	2	3	0	1	4	20	0	0	0	0	0	50	0
8:55 AM	0	0	0	1	15	0	3	0	0	1	12	0	0	0	0	0	32	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	2	0	3	21	218	15	20	1	23	19	360	1	0	0	0	0	683	0
7:15 AM	3	1	4	18	266	19	22	1	20	15	350	1	0	0	0	0	720	0
7:30 AM	3	2	4	12	285	22	24	3	19	16	318	1	0	0	0	0	709	0
7:45 AM	3	2	6	6	294	20	25	4	18	17	288	0	0	0	0	0	683	0
8:00 AM	2	3	7	9	250	22	26	4	10	22	260	2	0	0	0	0	617	0

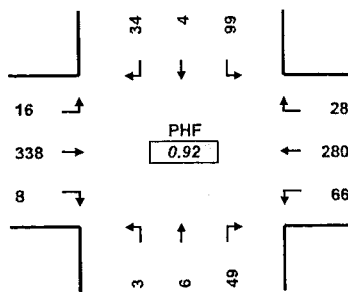
Version 3.1

INTERSECTION: Tannler--/Blankenship--
 PROJECT ID#: 2060016
 QC JOB #: 10142104

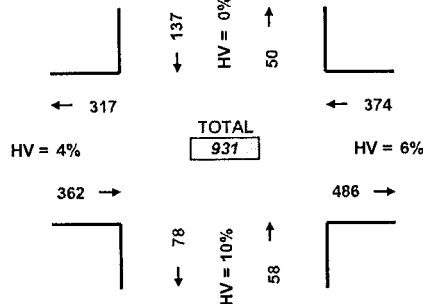
START TIME: 7:00 AM
 END TIME: 9:00 AM
 DATE: 2/6/2006

QC
QUALITY
COUNTS
 16285 SW 85th Avenue, Ste. 105
 Tigard, OR 97224
 Phone: 503-620-4242
 Fax: 503 620-4545
 email: jrw@qualitycounts.net
 www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



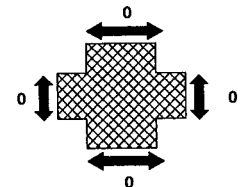
PEAK HOUR LINK VOLUMES



PEAK HOUR: 7:30 AM
 TO
 8:30 AM

PEAK 15 MINUTES: 7:30 AM
 TO
 7:45 AM

PEAK HOUR PED
 CROSSING VOLUMES



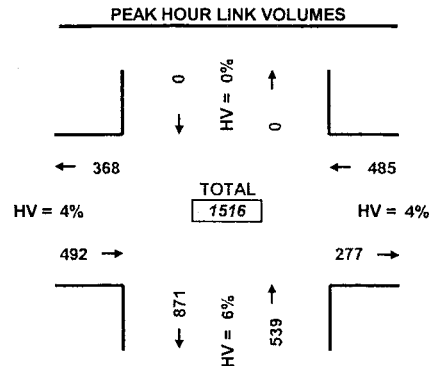
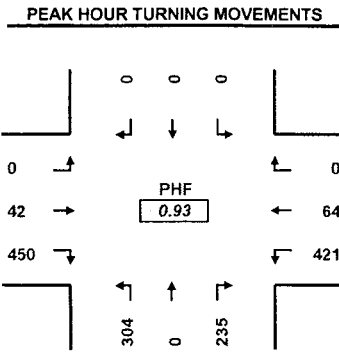
5-MINUTE COUNT PERIOD BEGINNING AT	Tannler-- (Southbound)			Blankenship-- (Westbound)			Tannler-- (Northbound)			Blankenship-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	1	1	9	1	13	5	3	0	0	1	16	0	0	0	0	0	50	0
7:05 AM	0	0	9	2	8	3	3	0	1	1	36	1	0	0	0	0	64	0
7:10 AM	2	0	6	1	9	2	5	0	0	1	35	1	0	0	0	0	62	0
7:15 AM	5	1	6	1	15	8	4	0	0	1	30	0	0	0	0	0	71	0
7:20 AM	3	1	8	1	12	9	9	0	0	1	26	3	0	0	0	0	73	0
7:25 AM	3	0	6	1	20	3	6	0	0	1	35	0	0	0	0	0	75	0
7:30 AM	2	0	10	0	22	2	1	0	0	1	39	2	0	0	0	0	79	0
7:35 AM	7	0	14	5	16	3	3	0	0	1	37	0	0	0	0	0	86	0
7:40 AM	4	1	10	2	24	7	4	1	0	1	34	0	0	0	0	0	88	0
7:45 AM	2	0	9	2	32	4	1	1	1	0	22	1	0	0	0	0	75	0
7:50 AM	5	0	6	2	22	6	2	0	0	0	32	3	0	0	0	0	78	0
7:55 AM	2	0	9	5	24	4	3	0	0	0	24	3	0	0	0	0	74	0
8:00 AM	1	0	6	1	21	7	6	1	1	2	31	2	0	0	0	0	79	0
8:05 AM	4	0	8	2	15	6	3	0	0	1	21	0	0	0	0	0	60	0
8:10 AM	1	1	7	3	21	5	7	1	0	0	24	2	0	0	0	0	72	0
8:15 AM	1	0	6	0	37	5	5	0	0	0	28	1	0	0	0	0	83	0
8:20 AM	3	1	8	3	19	12	5	1	0	1	24	1	0	0	0	0	78	0
8:25 AM	2	1	6	3	27	5	9	1	1	1	22	1	0	0	0	0	79	0
8:30 AM	2	1	5	5	19	8	6	0	0	1	26	1	0	0	0	0	74	0
8:35 AM	2	0	5	4	27	3	5	1	1	0	27	0	0	0	0	0	75	0
8:40 AM	0	0	7	1	18	11	8	0	0	1	19	2	0	0	0	0	67	0
8:45 AM	3	0	5	2	18	5	8	0	1	0	13	1	0	0	0	0	56	0
8:50 AM	1	0	6	1	19	8	6	0	1	1	15	3	0	0	0	0	61	0
8:55 AM	2	0	5	3	21	11	5	0	0	0	16	0	0	0	0	0	63	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	36	4	102	23	217	56	44	2	2	9	366	14	0	0	0	0	875	0
7:15 AM	39	4	99	25	244	64	49	4	2	9	355	16	0	0	0	0	910	0
7:30 AM	34	4	99	28	280	66	49	6	3	8	338	16	0	0	0	0	931	0
7:45 AM	25	4	82	31	282	76	60	6	4	7	300	17	0	0	0	0	894	0
8:00 AM	22	4	74	28	262	86	73	5	5	8	266	14	0	0	0	0	847	0

Version 3.1

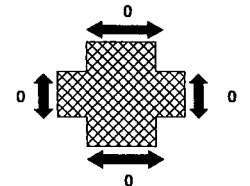
INTERSECTION: 10th St.--Blankenship Rd.--
 PROJECT ID#: 2060016
 QC JOB #: 10142103

START TIME: 7:00 AM
 END TIME: 9:00 AM
 DATE: 2/2/2006

QC
QUALITY
COUNTS
 16285 SW 85th Avenue, Ste. 105
 Tigard, OR 97224
 Phone: 503-620-4242
 Fax: 503 620-4545
 email: jrw@qualitycounts.net
 www.qualitycounts.net



**PEAK HOUR PED
 CROSSING VOLUMES**



PEAK HOUR: 7:30 AM
 TO
 8:30 AM

PEAK 15 MINUTES: 7:30 AM
 TO
 7:45 AM

5-MINUTE COUNT PERIOD BEGINNING AT	10th St.-- (Southbound)			Blankenship Rd.-- (Westbound)			10th St.-- (Northbound)			Blankenship Rd.-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	0	0	0	1	31	9	0	15	31	2	0	0	0	0	0	89	0
7:05 AM	0	0	0	0	1	26	15	0	12	47	1	0	0	0	0	0	102	0
7:10 AM	0	0	0	0	2	31	10	0	17	43	5	0	0	0	0	0	108	0
7:15 AM	0	0	0	0	5	36	6	0	17	38	5	0	0	0	0	0	107	0
7:20 AM	0	0	0	0	7	33	11	0	17	39	0	0	0	0	0	0	107	0
7:25 AM	0	0	0	0	12	44	14	0	18	43	5	0	0	0	0	0	136	0
7:30 AM	0	0	0	0	4	46	13	0	17	41	4	0	0	0	0	0	125	0
7:35 AM	0	0	0	0	7	38	14	0	22	54	5	0	0	0	0	0	140	0
7:40 AM	0	0	0	0	7	45	14	0	24	47	5	0	0	0	0	0	142	0
7:45 AM	0	0	0	0	7	49	30	0	28	32	0	0	0	0	0	0	146	0
7:50 AM	0	0	0	0	1	34	24	0	29	36	4	0	0	0	0	0	128	0
7:55 AM	0	0	0	0	5	34	21	0	29	36	3	0	0	0	0	0	128	0
8:00 AM	0	0	0	0	7	32	16	0	21	37	5	0	0	0	0	0	118	0
8:05 AM	0	0	0	0	0	29	14	0	22	28	7	0	0	0	0	0	100	0
8:10 AM	0	0	0	0	3	23	18	0	26	37	1	0	0	0	0	0	108	0
8:15 AM	0	0	0	0	7	35	15	0	37	33	2	0	0	0	0	0	129	0
8:20 AM	0	0	0	0	7	34	29	0	23	33	4	0	0	0	0	0	130	0
8:25 AM	0	0	0	0	9	22	27	0	26	36	2	0	0	0	0	0	122	0
8:30 AM	0	0	0	0	4	28	21	0	27	32	3	0	0	0	1	0	115	1
8:35 AM	0	0	0	0	4	28	27	0	31	32	3	0	0	0	0	0	125	0
8:40 AM	0	0	0	0	1	40	36	0	23	35	3	0	0	0	0	0	138	0
8:45 AM	0	0	0	0	2	37	17	0	23	25	1	0	0	0	0	0	105	0
8:50 AM	0	0	0	0	4	27	27	0	25	27	6	0	0	0	0	0	116	0
8:55 AM	0	0	0	0	6	29	33	0	28	22	3	0	0	0	0	0	121	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	0	0	0	0	59	447	181	0	245	487	39	0	0	0	0	0	1458	0
7:15 AM	0	0	0	0	65	443	195	0	270	468	44	0	0	0	0	0	1485	0
7:30 AM	0	0	0	0	64	421	235	0	304	450	42	0	0	0	0	0	1516	0
7:45 AM	0	0	0	0	55	388	278	0	322	407	37	0	0	0	1	0	1487	1
8:00 AM	0	0	0	0	54	364	280	0	312	377	40	0	0	0	1	0	1427	1

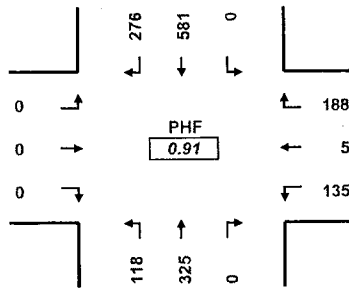
North Side of I-205

INTERSECTION: 10th St--I-205 SB Ramps--
PROJECT ID#: 2060016
QC JOB #: 10142102

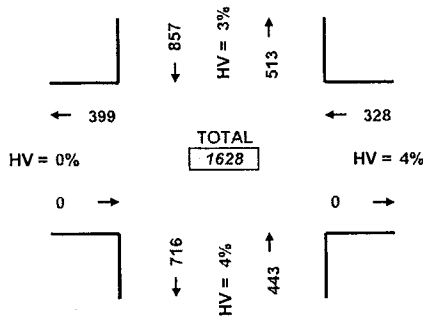
START TIME: 7:00 AM
END TIME: 9:00 AM
DATE: 2/2/2006

QC
QUALITY COUNTS
16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: jrw@qualitycounts.net
www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



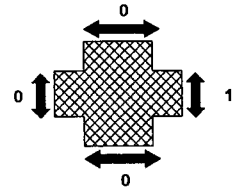
PEAK HOUR LINK VOLUMES



PEAK HOUR: 7:30 AM TO 8:30 AM

PEAK 15 MINUTES: 7:45 AM TO 8:00 AM

PEAK HOUR PED CROSSING VOLUMES



5-MINUTE COUNT PERIOD BEGINNING AT	10th St-- (Southbound)			I-205 SB Ramps-- (Westbound)			10th St-- (Northbound)			I-205 SB Ramps-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	24	37	0	4	0	6	0	18	10	0	0	0	0	0	0	0	99	0
7:05 AM	30	43	0	6	0	3	0	22	13	0	0	0	0	0	0	0	117	0
7:10 AM	31	41	0	4	0	6	0	22	16	0	0	0	0	0	0	0	120	0
7:15 AM	27	51	0	5	0	7	0	16	6	0	0	0	0	0	0	0	112	0
7:20 AM	23	49	0	8	0	11	0	27	11	0	0	0	0	0	0	0	129	0
7:25 AM	28	55	0	4	0	7	0	28	6	0	0	0	1	0	0	0	128	1
7:30 AM	25	66	0	12	0	8	0	15	9	0	0	0	0	0	0	0	135	0
7:35 AM	23	60	0	11	0	13	0	23	7	0	0	0	0	0	0	0	137	0
7:40 AM	22	60	0	10	0	8	0	29	7	0	0	0	0	0	0	0	136	0
7:45 AM	33	58	0	13	1	9	0	39	5	0	0	0	0	0	0	0	158	0
7:50 AM	29	46	0	25	3	7	0	28	9	0	0	0	0	1	0	0	147	1
7:55 AM	19	48	0	18	0	12	0	29	18	0	0	0	0	0	0	0	144	0
8:00 AM	15	48	0	18	0	17	0	16	12	0	0	0	0	0	0	0	126	0
8:05 AM	25	29	0	13	0	11	0	25	8	0	0	0	0	0	0	0	111	0
8:10 AM	17	45	0	13	0	3	0	32	8	0	0	0	0	0	0	0	118	0
8:15 AM	25	47	0	18	0	13	0	28	7	0	0	0	0	0	0	0	138	0
8:20 AM	20	45	0	20	1	19	0	31	11	0	0	0	0	0	0	0	147	0
8:25 AM	23	29	0	17	0	15	0	30	17	0	0	0	0	0	0	0	131	0
8:30 AM	12	47	0	24	0	16	0	23	9	0	0	0	0	0	0	0	131	0
8:35 AM	22	44	0	17	5	10	0	35	7	0	0	0	0	0	0	0	140	0
8:40 AM	30	31	1	17	0	3	0	40	9	0	0	0	0	0	0	0	131	0
8:45 AM	23	39	0	13	0	7	1	24	6	0	0	0	0	0	0	0	113	0
8:50 AM	20	33	0	24	0	6	0	26	6	0	0	0	0	0	0	0	115	0
8:55 AM	18	31	0	24	0	14	0	34	7	0	0	0	0	0	0	0	128	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	314	614	0	120	4	97	0	296	117	0	0	0	1	1	0	0	1562	2
7:15 AM	286	615	0	150	4	113	0	307	106	0	0	0	1	1	0	0	1581	2
7:30 AM	276	581	0	188	5	135	0	325	118	0	0	0	0	1	0	0	1628	1
7:45 AM	270	517	1	213	10	135	0	356	120	0	0	0	0	1	0	0	1622	1
8:00 AM	250	468	1	218	6	134	1	344	107	0	0	0	0	0	0	0	1529	0

Version 3.1

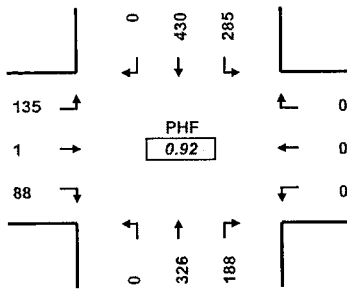
South 5/4 of I-205

INTERSECTION: 10th St--I-205 Ramps--
PROJECT ID#: 2060016
QC JOB #: 10142101

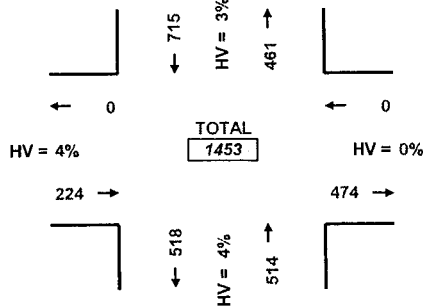
START TIME: 7:00 AM
END TIME: 9:00 AM
DATE: 2/2/2006

QC
QUALITY COUNTS
16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: jrw@qualitycounts.net
www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



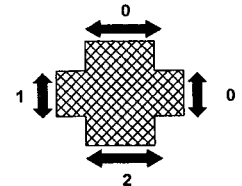
PEAK HOUR LINK VOLUMES



PEAK HOUR: 7:30 AM TO 8:30 AM

PEAK 15 MINUTES: 7:30 AM TO 7:45 AM

PEAK HOUR PED CROSSING VOLUMES

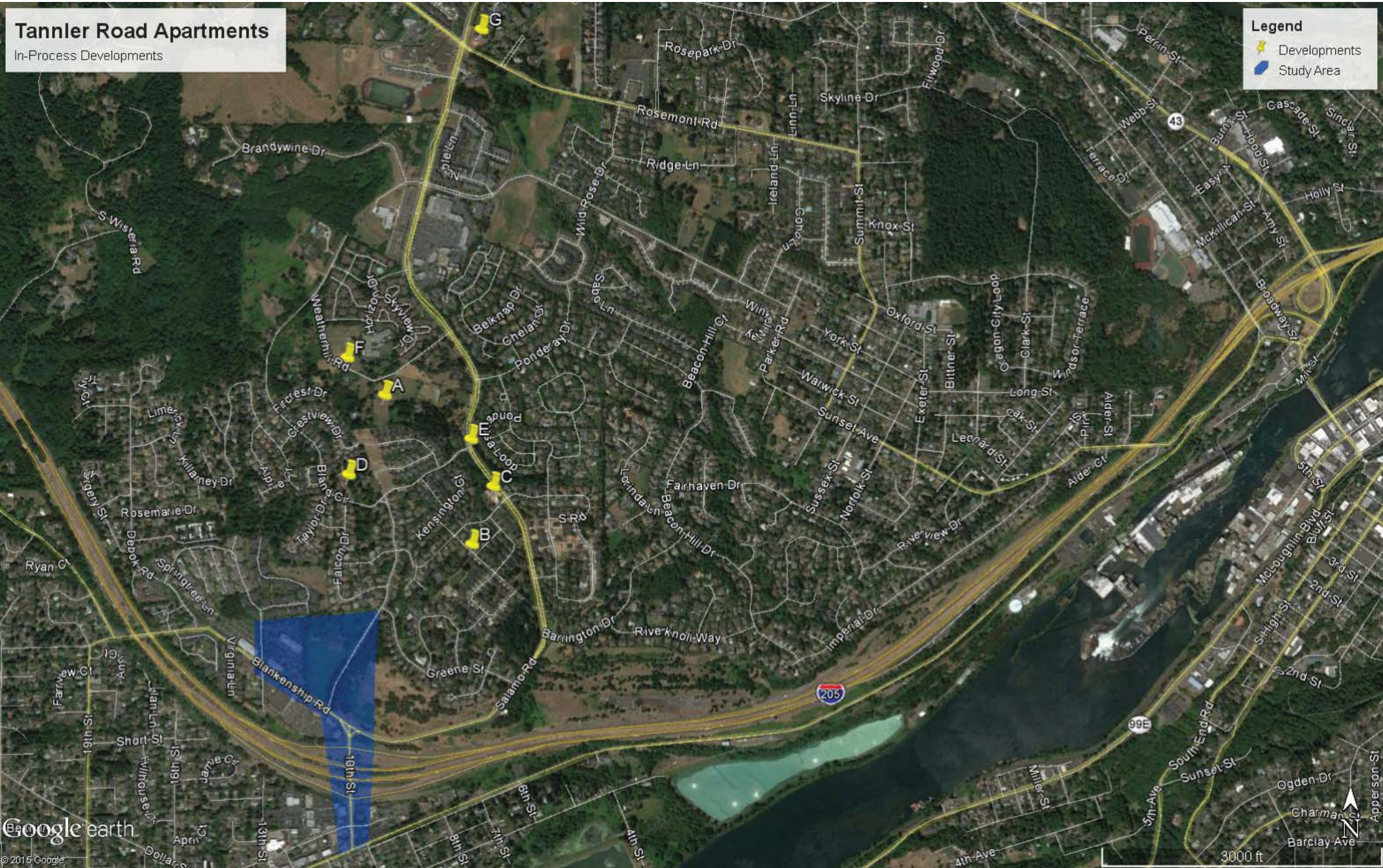


5-MINUTE COUNT PERIOD BEGINNING AT	10th St-- (Southbound)			I-205 NB Ramp-- (Westbound)			10th St-- (Northbound)			I-205 NB Ramp-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	19	22	0	0	0	16	18	0	7	0	10	0	0	0	0	92	0
7:05 AM	0	12	26	0	0	0	16	28	0	6	0	4	0	0	0	0	92	0
7:10 AM	0	15	29	0	0	0	19	22	0	11	0	12	0	0	0	0	108	0
7:15 AM	0	27	29	0	0	0	9	21	0	7	0	7	0	0	0	0	100	0
7:20 AM	0	23	31	0	0	0	16	22	0	7	0	6	0	0	0	0	105	0
7:25 AM	0	30	34	0	0	0	16	13	0	16	0	14	0	0	0	0	123	0
7:30 AM	0	35	38	0	0	0	20	19	0	7	1	7	0	0	0	0	127	0
7:35 AM	0	45	25	0	0	0	16	24	0	5	0	6	0	0	0	0	121	0
7:40 AM	0	53	26	0	0	0	23	27	0	9	0	8	0	0	0	1	146	1
7:45 AM	0	43	12	0	0	0	12	35	0	5	0	9	0	0	2	0	116	2
7:50 AM	0	27	24	0	0	0	23	39	0	4	0	9	0	0	0	0	126	0
7:55 AM	0	30	33	0	0	0	8	37	0	4	0	12	0	0	0	0	124	0
8:00 AM	0	32	29	0	0	0	11	22	0	10	0	6	0	0	0	0	110	0
8:05 AM	0	28	22	0	0	0	16	16	0	10	0	10	0	0	0	0	102	0
8:10 AM	0	35	17	0	0	0	11	23	0	9	0	17	0	0	0	0	112	0
8:15 AM	0	34	19	0	0	0	22	17	0	6	0	14	0	0	0	0	112	0
8:20 AM	0	31	31	0	0	0	16	39	0	10	0	19	0	0	0	0	146	0
8:25 AM	0	37	9	0	0	0	10	28	0	9	0	18	0	0	0	0	111	0
8:30 AM	0	40	27	0	0	0	13	22	0	5	0	7	0	0	0	0	114	0
8:35 AM	0	30	33	0	0	0	8	22	0	9	0	15	0	0	0	0	117	0
8:40 AM	0	24	22	0	0	0	19	32	0	11	0	13	0	0	0	0	121	0
8:45 AM	0	23	15	0	0	0	19	23	0	9	0	13	0	0	0	0	102	0
8:50 AM	0	21	18	0	0	0	12	19	0	8	0	10	0	0	0	0	88	0
8:55 AM	0	28	19	0	0	0	15	28	0	7	0	9	0	0	0	0	106	0
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 PM	0	359	329	0	0	0	194	305	0	88	1	104	0	0	2	1	1380	3
7:15 PM	0	408	320	0	0	0	181	298	0	93	1	111	0	0	2	1	1412	3
7:30 PM	0	430	285	0	0	0	188	326	0	88	1	135	0	0	2	1	1453	3
7:45 PM	0	391	278	0	0	0	169	332	0	92	0	149	0	0	2	0	1411	2
8:00 PM	0	363	261	0	0	0	172	291	0	103	0	151	0	0	0	0	1341	0

Version 3.1

Tannler Road Apartments

In-Process Developments



Tannler Road Apartments – In-process Developments

- A. 22850 Weatherhill Road 22-Lot Subdivision
 - Application in-process
- B. 2900 Haskins Road 6-Lot Planned Unit Development
 - Approved on November 5, 2014
 - In construction
- C. 23451 Salamo Road 3-Lot Minor Partition
 - Approved on August 13, 2013
 - In construction
- D. 23112 Bland Circle 5-Lot Subdivision “Falcon Place”
 - Approved on March 30, 2013
 - In construction
- E. 23510 Bland Circle 11-Lot Subdivision
 - Approved on October 2, 2013
 - In construction
- F. 22882 Weatherhill Road 11-Lot Subdivision
 - Approved on December 18, 2013
 - In construction
- G. 1700 Santa Anita Drive 3-Lot Minor Partition
 - Approved on July 15, 2013
 - In construction

In-process developments were assumed to be significant to the study area where trips are anticipated to travel on I-205 via 10th Street. Developments to the east of Salamo Road are anticipated to travel east toward the I-205 ramp on Willamette Falls Drive, and therefore will not be included in the analysis. Developments south of I-205 include 8 lots, all of which are anticipated to minimally impact the study area, and therefore will not be included in the analysis.

Intersection Name: I-205 SB @ 10th / Salamo / Blankenship
Controller 122319.2 Channel: - Drop: 0
System: TransCore TransSuite TCS
Controller Type: Voyage
Revision - Version -
TransCore Unified Controller Manager 10.3.1

Zero Tables

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Controller Function and Timing

Security, Sequence and Timing (Next/2/1, Next/2/2/3/A, Next/2/2/5)					
Security Code	0	0 = disabled, or 1000-9999	First All Red	8.0	0.0 to 25.5 seconds
Sequence	7	0 = sequential, 1 = quad left turn, 2-6 = special A-E, 7 = lead lag			
Power up Flash	0.0	0.0 - 25.5 seconds			

Initialization (Next/2/2/5)			Lead Lag (Next/2/2/3/A)			
Ring 1	Ring 2	Interval	Phases 1 - 2	Phases 3 - 4	Phases 5 - 6	Phases 7 - 8
1	0	0	2	2	2	2
Phase 1 - 8		0 = Red, 1 = Yel, 2 = Grn	0 = no reversal, 1 = reversal, 2 = by coord plan or clock			

(Next/2/2/3)		Phase Functions		(Next/2/2/1)							
Phase Used	1 2 3 4 5 6 7 8		Yellow Lock	-	-	-	-	-	-	-	
Restricted Phases	- - - - - - - -		Min Recall	-	2	-	-	5	-	-	-
Exclusive Phases	- - - - - - 7 -		Max Recall	-	-	-	-	-	-	-	-
			Ped Recall	-	-	-	-	-	-	-	-
			Red Lock	-	-	-	-	-	-	-	-
			Max Out Recall Inhibit	1	2	3	4	5	6	7	8
			Soft Recall	-	-	-	-	-	-	-	-
			Free Walk Rest	-	-	-	-	-	-	-	-
			Conditional Ped	-	-	-	-	-	-	-	-
			Disable Inhibit Max Termination	-	-	-	-	-	-	-	-
			Call To Non-Act 1	-	-	-	-	-	-	-	-
			Call To Non-Act 2	-	-	-	-	-	-	-	-

Phase Times (Next/2/2/2)									
Phase	1	2	3	4	5	6	7	8	
Movement									
Minimum Green	4	6	4	6	10	2	6	6	0 - 255 sec.
Passage	2.3	2.3	2.3	2.3	5.2	0.5	2.3	2.3	0.0 - 25.5 sec.
Yellow	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	0.0 - 25.5 sec.
Red Clearance	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.0	0.0 - 25.5 sec. or 0 - 255 sec.
Max 1	21	37	30	16	40	6	25	32	0 - 255 sec.
Max 2	21	37	30	16	40	6	25	32	0 - 255 sec.
Walk	0	5	5	5	5	0	5	0	0 - 255 sec.
Ped Clear	0	11	10	23	12	0	13	0	0 - 255 sec.
Seconds Per Actuation	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0 - 25.5 sec.
Time Before Reduction	8	8	8	8	10	0	8	8	0 - 255 sec.
Time to Reduce	3	3	3	3	20	0	3	3	0 - 255 sec.
Minimum Gap	0.5	0.5	0.5	0.5	3.2	0.5	0.5	0.5	0.0 - 25.5 sec.
Max Variable Initial	4	6	4	6	13	2	6	6	0 - 255 sec.
Max Extend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Auto Max	0	0	0	0	0	0	0	0	0 - 255 sec.
Advanced walk	0	0	0	0	0	0	0	0	0 - 255 sec.

Phase Times (Next/2/2/9/5)									
Inhibit Min Yellow									X = On
Red Decimal Off									X = On

Dual Entry (Next/2/2/9/3)

Mode	1	0 = off, 1 = on, 2 = Not Used, 3 = by coord plan, 4 = by time clock circuit 61
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Dual Entry Ph -->	1	2	3	4	5	6	7	8	
Phase	0	0	0	8	0	0	0	4	0 = none, 1-8 = phase 1-8

Cond Service (Next/2/2/9/3/A)			5 Sec Head Logic (Next/2/2/9/4)						
	Mode	CS Max Time	X Omits Y		Anti-Trap		Yellow Blanking LT		
Phase 1	0	7	X:Y		Trap Protected Phase	Next Phase	Phase		
Phase 3	0	0	6:1	0	1	0	< (5)	1	0
Phase 5	0	0	8:3	0	3	0	< (7)	3	0
Phase 7	0	0	2:5	0	5	0	< (1)	5	0
0 = off, 1 = C.S.On. 2 = C.S. on by TOD circuit 57, 3 = N/A, 4 = C.S. and C.R. On, 5 = C.R. on by TOD circuit 57.			4:7	0	7	0	< (3)	7	0
			0 = off, 1 = side call, 2 = no side call		X = On				

Other Controller Functions (Next/2/2/9/1, Next/2/2/9/5)

Inhibit Simultaneous Gap Out	1 - 3 4 5 - 7 8	
Last Car Passage	2	0 = recall phase, 1 = last car passage, 2 = NOT recall - Not last car passage
Red Revert (+2seconds)	0.0	0 - 25.5 sec.
Auto Ped Clear	On	X = On
FDW thru Yellow	Off	X = On
Red Rest Delay	0.0	0 - 25.5 sec.
Change Sequence	Off	X = On (After a download without a power on - off cycle)
Advanced Flash Rate	60 FPM	0 = Disabled (60 FPM), 1 = 120 FPM
Ped Push Button Time	null	0 = Disable, 0 - 5 Seconds

Phase -->	1	2	3	4	5	6	7	8	
Red Clear Extension Detector	0	0	0	0	0	0	0	0	0 = none 1 - 32 = detector 1 - 32
Red Clear Extension Red Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec.

Local Detectors (Next/2/2/4/1)

Detector Data

Detector	Description	Yellow Lock	Detector Inhibit	Call Phase	Extend Phase	Switch Phase	Delay Time	Stretch / Disconnect Time	Delay or Disconnect Mode
1				1	1	0	0	2.0	0
2				1	1	0	0	0.0	0
3				3	3	0	0	2.0	0
4				3	3	0	0	0.0	0
5				5	5	0	0	0.0	0
6				5	5	0	0	0.0	0
7				7	7	0	0	2.0	0
8				7	7	0	0	0.0	0
9				2	2	0	0	0.0	0
10				2	2	3	0	2.0	0
11				2	2	3	0	0.0	0
12				2	2	3	0	0.0	0
13				2	2	0	0	0.0	0
14				4	4	0	0	2.0	0
15				4	4	0	0	0.0	0
16				4	4	0	0	0.0	0
17				4	4	0	0	0.0	0
18				4	4	0	0	0.0	0
19				7	7	0	0	2.0	0
20				7	7	0	0	2.0	0
21				5	5	0	0	2.0	0
22				5	5	0	0	0.0	0
23				5	5	0	0	0.0	0
24				8	8	0	0	2.0	0
25				8	8	0	0	0.0	0
26				8	8	0	0	0.0	0
27				8	8	0	0	0.0	0
28				8	8	0	0	0.0	0
29				5	5	4	3	0.0	0
30				7	7	0	0	0.0	0
31				0	0	0	0	0.0	0
32				0	0	0	0	0.0	0

yellow lock, detector inhibit, - X = On; call, extend, phase - 0 = none 1 - 8 = phase 1 - 8; delay time - 0 - 255 sec
stretch / disconnect time - 0.0 - 25.5 sec.; delay or disconnect Mode - 0 -12

Local Detectors 33 - 64 (Next/2/2/4/6)

Detector Data

Detector	Description	Yellow Lock	Detector Inhibit	Call Phase	Extend Phase	Switch Phase	Delay Time	Stretch / Disconnect Time	Delay or Disconnect Mode
33		N/A	N/A	0	0	N/A	N/A	N/A	N/A
34		N/A	N/A	0	0	N/A	N/A	N/A	N/A
35		N/A	N/A	0	0	N/A	N/A	N/A	N/A
36		N/A	N/A	0	0	N/A	N/A	N/A	N/A
37		N/A	N/A	0	0	N/A	N/A	N/A	N/A
38		N/A	N/A	0	0	N/A	N/A	N/A	N/A
39		N/A	N/A	0	0	N/A	N/A	N/A	N/A
40		N/A	N/A	0	0	N/A	N/A	N/A	N/A
41		N/A	N/A	0	0	N/A	N/A	N/A	N/A
42		N/A	N/A	0	0	N/A	N/A	N/A	N/A
43		N/A	N/A	0	0	N/A	N/A	N/A	N/A
44		N/A	N/A	0	0	N/A	N/A	N/A	N/A
45		N/A	N/A	0	0	N/A	N/A	N/A	N/A
46		N/A	N/A	0	0	N/A	N/A	N/A	N/A
47		N/A	N/A	0	0	N/A	N/A	N/A	N/A
48		N/A	N/A	0	0	N/A	N/A	N/A	N/A
49		N/A	N/A	0	0	N/A	N/A	N/A	N/A
50		N/A	N/A	0	0	N/A	N/A	N/A	N/A
51		N/A	N/A	0	0	N/A	N/A	N/A	N/A
52		N/A	N/A	0	0	N/A	N/A	N/A	N/A
53		N/A	N/A	0	0	N/A	N/A	N/A	N/A
54		N/A	N/A	0	0	N/A	N/A	N/A	N/A
55		N/A	N/A	0	0	N/A	N/A	N/A	N/A
56		N/A	N/A	0	0	N/A	N/A	N/A	N/A
57		N/A	N/A	0	0	N/A	N/A	N/A	N/A
58		N/A	N/A	0	0	N/A	N/A	N/A	N/A
59		N/A	N/A	0	0	N/A	N/A	N/A	N/A
60		N/A	N/A	0	0	N/A	N/A	N/A	N/A
61		N/A	N/A	0	0	N/A	N/A	N/A	N/A
62		N/A	N/A	0	0	N/A	N/A	N/A	N/A
63		N/A	N/A	0	0	N/A	N/A	N/A	N/A
64		N/A	N/A	0	0	N/A	N/A	N/A	N/A

yellow lock, detector inhibit, - X = On; call, extend, phase - 0 = none 1 - 8 = phase 1 - 8; delay time - 0 - 255 sec
stretch / disconnect time - 0.0 - 25.5 sec.; delay or disconnect Mode - 0 - 12

Detector Plans (Next/2/2/4/5)

Loop Number										
Plan Detectors		0	0	0	0	0	0	0	0	0 - 32, 0 = none, 1 - 32 = detectors 1- 32
Detector Plan 1	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extended Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	0 - 255 seconds
	Stretch / Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 seconds
	Delay / Disconnect Mode	0	0	0	0	0	0	0	0	0 - 14
Detector Plan 2	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extended Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	0 - 255 seconds
	Stretch / Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 seconds
	Delay / Disconnect Mode	0	0	0	0	0	0	0	0	0 - 14
Detector Plan 3	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extended Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	0 - 255 seconds
	Stretch / Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 seconds
	Delay / Disconnect Mode	0	0	0	0	0	0	0	0	0 - 14

Detector Fail (Next/2/2/4/3)

Detector Fail Sample Period (all detectors)		0	0 - 255 minutes							
Dynamic Phase Length Fail Period		0	0 - 255 minutes							
Video Fail Inputs	1	2	3	4	5	6	7	8	0 = none, 1 - 8 = phase 1 - 8	
Phase Recalled	0	0	0	0	0	0	0	0		
System Detectors	1	2	3	4	5	6	7	8	0 = none, 1 - 32 = detector 1 - 32	
Local Detector	1	5	9	10	19	20	29	30		

Flash (Next/2/2/5)

Flash Entry			Flash Exit		
Ring 1	Ring 2	Interval	Ring 1	Ring 2	Interval
0	0	red	1	0	0
0 = none, phase 1 - 8		0 = red, 1 = yel, 2 = grn	0 = none, phase 1 - 8		0 = red, 1 = yel, 2 = grn

Soft Flash (Next/2/2/5/A)

Phase	1	2	3	4	5	6	7	8				
	3	4	3	4	3	4	3	4				
Overlap	A	B	C	D	E	F	G	H	I	J	K	L
	3	4	3	4	3	4	3	4	3	4	3	4
0 = dark, 1=flash yel WIG, 2 = flash yel WAG, 3 = flash red WIG, 4 = flash red WAG												

Internal Logic Output	1	2	3	4	5	6	7	8	9	10	11	12	0 = normal, 1 = dark, 2 = flash WIG
	0	0	0	0	0	0	0	0	0	0	0	0	

Overlaps (Next/2/2/8/1)

Vehicle Overlaps	Phase or Movement	Phase or Movement								Extension Green	Clearance		A - D 0 = no overlap 1 = overlap 2 = 60 FPM 3 = Not ped overlap 4 = Comp Phase 5 = Prevent Ext 6 = Not Vehicle E - L 0 = no Overlap 1 = Overlap Green, Yellow, Red 0.0 - 25.5 sec
		1	2	3	4	5	6	7	8		Yellow	Red	
A		0	0	0	0	1	1	1	0	0.0	0.0	0.0	
B		0	1	1	1	0	0	0	0	0.0	0.0	0.0	
C		0	0	1	0	1	1	1	0	0.0	0.0	0.0	
D		0	0	0	1	1	0	1	0	0.0	0.0	0.0	
E		0	0	0	0	0	0	1	0	0.0	0.0	0.0	
F		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
G		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
H		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
I		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
J		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
K		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
L		0	0	0	0	0	0	0	0	0.0	0.0	0.0	

(Next/2/2/8/6/8)

Ped Overlaps

(Next/2/2/8/5)

Overlap	Not Ped-Ped Overlaps	Ped Overlap	Phase	Recall	Walk	Ped Clear	Walk, Ped Clear 0 - 255 seconds
	<u>A B C D E F G H</u>						
A	- - - - - - - -	A	- - - - - - - -		0	0	
B	- - - - - - - -	B	- - - - - - - -		0	0	
C	- - - - - - - -	C	- - - - - - - -		0	0	
D	- - - - - - - -	D	- - - - - - - -		0	0	
		E	- - - - - - - -		0	0	
		F	- - - - - - - -		0	0	
		G	- - - - - - - -		0	0	
		H	- - - - - - - -		0	0	

Advance Warning (Next/2/2/8/3)

	E	F	G	H	I	J	K	L	
Enable	0	0	0	0	0	0	0	0	0 = Disable, 1 = Enable
1st Conditional Overlaps	0	0	0	0	0	0	0	0	0 = None, 1 = OL E, 2 = OL F, 3 = OL G, 4 = OL H, 5 = OL I, 6 = OL J, 7 = OL K, 8 = OL L
2nd Conditional Overlaps	0	0	0	0	0	0	0	0	
Advance Deactivation Delay	0	0	0	0	0	0	0	0	0 - 99 sec

Flashing Yellow Left Turn Arrow (FYLTA) (Next/2/2/8/6)

Phase Pairs ->	1 - 2	3 - 4	5 - 6	7 - 8	
Enable	0	0	0	0	0 = off, 3 = 3 outputs, 4 = 4 outputs, 5 = 5 outputs
Even Omits Odd	0	0	0	0	0 / 1 / 2
Detector Switch Odd / Even	1	1	1	1	X = on, odd phase must be omitted
Red Transition	2 . 0	2 . 0	2 . 0	2 . 0	0.0 or 2.0 - 25.5 sec.
Red Extension	0 . 0	0 . 0	0 . 0	0 . 0	0.0 - 25.5 sec.
Return to GLTA	0	0	0	0	0 = off, 1 = max out, 2= yellow lock

Gap Dependent FYLTA					
Detector Input	0	0	0	0	0 = Disabled, 1 - 64 = Local Detector 1 - 64
Minimum Delay	0	0	0	0	0 - 255 seconds
Detector Gap Time	0 . 0	0 . 0	0 . 0	0 . 0	0 - 25.5 seconds.
Maximum Delay	0	0	0	0	0 - 255 seconds
Not Ped	0	0	0	0	

Dynamic Flashing Yellow Left Turn Arrow

Phase Pairs	1 - 2	3 - 4	5 - 6	7 - 8	
[Plan A] Detector Input	0	0	0	0	Detectors 1 - 64; 0 = disabled
Detector Gap Time	0 . 0	0 . 0	0 . 0	0 . 0	0.0 - 25.5
FYLTA Max Delay	0	0	0	0	0 - 255
FYLTA Min Delay	0	0	0	0	0 - 255
Not Ped Mode	0	0	0	0	0 - 4

[Plan B] Detector Input	0	0	0	0	Detectors 1 - 64; 0 = disabled
Detector Gap Time	0 . 0	0 . 0	0 . 0	0 . 0	0.0 - 25.5
FYLTA Max Delay	0	0	0	0	0 - 255
FYLTA Min Delay	0	0	0	0	0 - 255
Not Ped Mode	0	0	0	0	0 - 4

[Plan C] Detector Input	0	0	0	0	Detectors 1 - 64; 0 = disabled
Detector Gap Time	0 . 0	0 . 0	0 . 0	0 . 0	0.0 - 25.5
FYLTA Max Delay	0	0	0	0	0 - 255
FYLTA Min Delay	0	0	0	0	0 - 255
Not Ped Mode	0	0	0	0	0 - 4

[Plan D] Detector Input	0	0	0	0	Detectors 1 - 64; 0 = disabled
Detector Gap Time	0 . 0	0 . 0	0 . 0	0 . 0	0.0 - 25.5
FYLTA Max Delay	0	0	0	0	0 - 255
FYLTA Min Delay	0	0	0	0	0 - 255
Not Ped Mode	0	0	0	0	0 - 4

CoordinationData		
Coordination Modes (Next/2/3/1)		
Flash Mode	3 3	0=off, 1=on, 33=time clock, 34=comm, 35=hardwire
Coordination Plan Mode	3 4	0=free, 1-32 = coord plan 1-32, 33=time clock, 34=comm, 35=hardwire
Offset Seeking Mode	2	0=add only, 1= dwell, 2=fastway
Late Ped	0	0 = off, 1 = on
Coord Walk Rest	0	0 = off, 1 = on, 2 = by tod circuit 160, 3 = end of walk, 4 = coord ped during perms
Zero Mode(TS2 only)	0	0=start of main street, 1=end of main street, 2=by TOD circuit 144, 3 = first green
(Next/2/3/4/1)		
Repeated Ped Service	2	0=off, 1=on (no coord ped), 2=on (beginning green coord ped), 3=on (coord ped always)
Omit Phase During Repeated Phase	- - - - -	-- = service allowed ; # = service prevented

Coordination Plans (Next/2/3/2)								
Coord Plan	Coordination Phases		Cycle Length	Offset Time	Min Cycle Len Dwell Time	Permissive	Service Plan	Max Plan
	Ring 1	Ring 2						
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0
	0 - 8		0 - 255 sec				0 - 8	

Circuit Mapping (Next/2/3/3)

Circuit Map	Coord Plan	Time Clock Circuit							
		1	2	3	4	5	6	7	8
1	34	0	0	0	0	0	0	0	0
2	34	0	0	0	0	0	0	0	0
3	34	0	0	0	0	0	0	0	0
4	34	0	0	0	0	0	0	0	0
5	34	0	0	0	0	0	0	0	0
6	34	0	0	0	0	0	0	0	0
7	34	0	0	0	0	0	0	0	0
8	34	0	0	0	0	0	0	0	0
9	34	0	0	0	0	0	0	0	0
10	34	0	0	0	0	0	0	0	0
11	34	0	0	0	0	0	0	0	0
12	34	0	0	0	0	0	0	0	0
13	34	0	0	0	0	0	0	0	0
14	34	0	0	0	0	0	0	0	0
15	34	0	0	0	0	0	0	0	0
16	34	0	0	0	0	0	0	0	0
17	34	0	0	0	0	0	0	0	0
18	34	0	0	0	0	0	0	0	0
19	34	0	0	0	0	0	0	0	0
20	34	0	0	0	0	0	0	0	0

coord plan - 0 = free, 1 - 32 = coord plan 1 - 32, 33 = any, 34 none selected
time clock circuits - 0 = not used, or circuits 6 - 199

Dynamic Phase Lengths (Next/2/3/4/4)

Phase ->		1	2	3	4	5	6	7	8	
Back Detector		1	31	0	29	5	32	0	30	0 = none, 1-32 = detector 1-32
Lane Factor		1.0	1.9	0.0	1.3	1.0	1.9	0.0	1.5	0 = none, 0.5 - 5.0
Check Out Detector		0	0	0	0	0	0	0	0	0 = none, 1-32 = detector 1-32
Coord Delta Force Off	Set A	5	5	0	5	5	5	0	5	0 - 255 sec
	Set B	0	0	0	5	5	0	0	5	
	Set C	0	0	0	0	0	0	0	0	
	Set D	0	0	0	0	0	0	0	0	
Free Delta Max	Set A	0	0	0	0	0	0	0	0	
	Set B	0	0	0	0	0	0	0	0	
	Set C	0	0	0	0	0	0	0	0	
	Set D	0	0	0	0	0	0	0	0	

Auto Permissive Min Green (Next/2/3/4/3)

Phase ->	1	2	3	4	5	6	7	8	
Auto Perm Min Green	0	0	0	0	0	0	0	0	0 - 255 sec.

Time of Day Data (Next/2/4/1)

Day Program

	Day Prog	Time	Coord Plan or Circuit	Coord Plan # or Circuit #	Circuit Abbrev	State On/Off
1	1	16:00	Circuit	13	MX2	X
2	1	18:30	Circuit	13	MX2	
3	0	00:00	Circuit	0	None / Coord Plan	
4	0	00:00	Circuit	0	None / Coord Plan	
5	0	00:00	Circuit	0	None / Coord Plan	
6	0	00:00	Circuit	0	None / Coord Plan	
7	0	00:00	Circuit	0	None / Coord Plan	
8	0	00:00	Circuit	0	None / Coord Plan	
9	0	00:00	Circuit	0	None / Coord Plan	
10	0	00:00	Circuit	0	None / Coord Plan	
11	0	00:00	Circuit	0	None / Coord Plan	
12	0	00:00	Circuit	0	None / Coord Plan	
13	0	00:00	Circuit	0	None / Coord Plan	
14	0	00:00	Circuit	0	None / Coord Plan	
15	0	00:00	Circuit	0	None / Coord Plan	
16	0	00:00	Circuit	0	None / Coord Plan	
17	0	00:00	Circuit	0	None / Coord Plan	
18	0	00:00	Circuit	0	None / Coord Plan	
19	0	00:00	Circuit	0	None / Coord Plan	
20	0	00:00	Circuit	0	None / Coord Plan	
21	0	00:00	Circuit	0	None / Coord Plan	
22	0	00:00	Circuit	0	None / Coord Plan	
23	0	00:00	Circuit	0	None / Coord Plan	
24	0	00:00	Circuit	0	None / Coord Plan	
25	0	00:00	Circuit	0	None / Coord Plan	
26	0	00:00	Circuit	0	None / Coord Plan	
27	0	00:00	Circuit	0	None / Coord Plan	
28	0	00:00	Circuit	0	None / Coord Plan	
29	0	00:00	Circuit	0	None / Coord Plan	
30	0	00:00	Circuit	0	None / Coord Plan	
31	0	00:00	Circuit	0	None / Coord Plan	
32	0	00:00	Circuit	0	None / Coord Plan	
33	0	00:00	Circuit	0	None / Coord Plan	
34	0	00:00	Circuit	0	None / Coord Plan	
35	0	00:00	Circuit	0	None / Coord Plan	
36	0	00:00	Circuit	0	None / Coord Plan	
37	0	00:00	Circuit	0	None / Coord Plan	
38	0	00:00	Circuit	0	None / Coord Plan	
39	0	00:00	Circuit	0	None / Coord Plan	
40	0	00:00	Circuit	0	None / Coord Plan	
	1 - 15	hh:mm	X = On = Coord Plan	coord plan 0 - 32 or circuit 1-199		X = On

WEEK PROGRAM (Next/2/4/2)							
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	1	1	1	1	1	2
2	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1

0 = none, 1 - 15 = day plan

Time Clock References (Next/2/4/5)		
Synch reference Mode	0	0 = timed, 1 = by event
Synch Reference Time	00 : 00	00:00 - 23:59
Daylight Saving Enable	On	X = On
Reset Time	00 : 00	00:00 - 23:59

[illegible]

CIRCUIT OVERRIDES 1 - 100 (Next/2/4/4)

1 - Coord Line 1	CL1	2 = TOD	51 - Ped Omit 3	PO3	2 = TOD
2 - Coord Line 2	CL2	2 = TOD	52 - Ped Omit 4	PO4	2 = TOD
3 - Coord Line 4	CL4	2 = TOD	53 - Ped Omit 5	PO5	2 = TOD
4 - Coord Line 8	CL8	2 = TOD	54 - Ped Omit 6	PO6	2 = TOD
5 - Coord Line 16	C16	2 = TOD	55 - Ped Omit 7	PO7	2 = TOD
6 - Coordinated Operation	CRD	2 = TOD	56 - Ped Omit 8	PO8	2 = TOD
7 - Soft Flash	SFL	2 = TOD	57 - Conditional Service	CVS	2 = TOD
8 - Enable System Relays	ESR	2 = TOD	58 - Inhibit Simultaneous Gap Out	ISG	1 = On
9 - Call to Non Actuated Ring 1	CN1	2 = TOD	59 - Inhibit Hardwire	HWI	2 = TOD
10 - Call to Non Actuated Ring 2	CN2	2 = TOD	60 - Ped Override Mode	POM	1 = On
11 - Walk Rest Modifier	WRM	2 = TOD	61 - Dual Entry	DLE	1 = On
12 - Min Recall	MIN	2 = TOD	62 - Exclusive Ped	EPD	2 = TOD
13 - Max 2 Both Rings	MX2	2 = TOD	63 - Call to Time Clock Mode	CTC	2 = TOD
14 - Coord Inhibit Max Ring 1	IM1	2 = TOD	64 - Dual Enhanced Ped	DEP	2 = TOD
15 - Coord Inhibit Max Ring 2	IM2	1 = On	65 - Service Plan 1	SP1	2 = TOD
16 - Call to Free	CTF	2 = TOD	66 - Service Plan 2	SP2	2 = TOD
17 - TOD Output 1	TO1	2 = TOD	67 - Service Plan 3	SP3	2 = TOD
18 - TOD Output 2	TO2	2 = TOD	68 - Service Plan 4	SP4	2 = TOD
19 - TOD Output 3	TO3	2 = TOD	69 - Service Plan 5	SP5	2 = TOD
20 - TOD Output 4	TO4	2 = TOD	70 - Service Plan 6	SP6	2 = TOD
21 - TOD Output 5	TO5	2 = TOD	71 - Service Plan 7	SP7	2 = TOD
22 - TOD Output 6	TO6	2 = TOD	72 - Service Plan 8	SP8	2 = TOD
23 - TOD Output 7	TO7	2 = TOD	73 - Max Plan 1	MP1	2 = TOD
24 - TOD Output 8	TO8	2 = TOD	74 - Max Plan 2	MP2	2 = TOD
25 - Vehicle Call Phase 1	VC1	2 = TOD	75 - Max Plan 3	MP3	2 = TOD
26 - Vehicle Call Phase 2	VC2	2 = TOD	76 - Max Plan 4	MP4	2 = TOD
27 - Vehicle Call Phase 3	VC3	2 = TOD	77 - Max Plan 5	MP5	2 = TOD
28 - Vehicle Call Phase 4	VC4	2 = TOD	78 - Max Plan 6	MP6	2 = TOD
29 - Vehicle Call Phase 5	VC5	2 = TOD	79 - Max Plan 7	MP7	2 = TOD
30 - Vehicle Call Phase 6	VC6	2 = TOD	80 - Max Plan 8	MP8	2 = TOD
31 - Vehicle Call Phase 7	VC7	2 = TOD	81 - Transit Priority Max Group 1	TG1	2 = TOD
32 - Vehicle Call Phase 8	VC8	2 = TOD	82 - Transit Priority Max Group 2	TG2	2 = TOD
33 - Ped Call Phase 1	PC1	2 = TOD	83 - Transit Priority Max Group 3	TG3	2 = TOD
34 - Ped Call Phase 2	PC2	2 = TOD	84 - Transit Priority Max Group 4	TG4	2 = TOD
35 - Ped Call Phase 3	PC3	2 = TOD	85 - Transit Priority Max Group 5	TG5	2 = TOD
36 - Ped Call Phase 4	PC4	2 = TOD	86 - Transit Priority Max Group 6	TG6	2 = TOD
37 - Ped Call Phase 5	PC5	2 = TOD	87 - Transit Priority Max Group 7	TG7	2 = TOD
38 - Ped Call Phase 6	PC6	2 = TOD	88 - Transit Priority Max Group 8	TG8	2 = TOD
39 - Ped Call Phase 7	PC7	2 = TOD	89 - Inhibit Gap Reducing 1	GR1	2 = TOD
40 - Ped Call Phase 8	PC8	2 = TOD	90 - Inhibit Gap Reducing 2	GR2	2 = TOD
41 - Phase Omit 1	VO1	2 = TOD	91 - Inhibit Gap Reducing 3	GR3	2 = TOD
42 - Phase Omit 2	VO2	2 = TOD	92 - Inhibit Gap Reducing 4	GR4	2 = TOD
43 - Phase Omit 3	VO3	2 = TOD	93 - Inhibit Gap Reducing 5	GR5	2 = TOD
44 - Phase Omit 4	VO4	2 = TOD	94 - Inhibit Gap Reducing 6	GR6	2 = TOD
45 - Phase Omit 5	VO5	2 = TOD	95 - Inhibit Gap Reducing 7	GR7	2 = TOD
46 - Phase Omit 6	VO6	2 = TOD	96 - Inhibit Gap Reducing 8	GR8	2 = TOD
47 - Phase Omit 7	VO7	2 = TOD	97 - Lag 1	LG1	2 = TOD
48 - Phase Omit 8	VO8	2 = TOD	98 - Lag 3	LG3	2 = TOD
49 - Ped Omit 1	PO1	2 = TOD	99 - Lag 5	LG5	2 = TOD
50 - Ped Omit 2	PO2	2 = TOD	100 - Lag 7	LG8	2 = TOD

CIRCUIT OVERRIDES 101 - 199 (Next/2/4/4)

101 - Inhibit Overlap A	OLA	2 = TOD	151 - Coord Hold 7	HD7	2 = TOD
102 - Inhibit Overlap B	OLB	2 = TOD	152 - Coord Hold 8	HD8	2 = TOD
103 - Inhibit Overlap C	OLC	2 = TOD	153 - PE Priority Return B	PRB	2 = TOD
104 - Inhibit Overlap D	OLD	2 = TOD	154 - PE Priority Return C	PRC	2 = TOD
105 - Enable Schedule A Phone 1	AT1	2 = TOD	155 - PE Priority Return D	PRD	2 = TOD
106 - Enable Schedule A Phone 2	AT2	2 = TOD	156 - PE Priority Return E	PRE	2 = TOD
107 - Enable Schedule B Phone 1	BT1	2 = TOD	157 - Platoon Inbound	PPI	2 = TOD
108 - Enable Schedule B Phone 2	BT2	2 = TOD	158 - Platoon Outbound	PPO	2 = TOD
109 - Enable Schedule C Phone 1	CT1	2 = TOD	159 - Platoon Spl 2	PS2	2 = TOD
110 - Enable Schedule C Phone 2	CT2	2 = TOD	160 - Coord Walk Rest	CWR	2 = TOD
111 - Enable Volume to Call Phone 1	VT1	2 = TOD	161 - Dynamic Phase Length Short Inhibit 1	SL1	2 = TOD
112 - Enable Volume to Call Phone 1	VT2	2 = TOD	162 - Dynamic Phase Length Short Inhibit 2	SL2	2 = TOD
113 - Enable Volume Logging	EVL	1 = On	163 - Dynamic Phase Length Short Inhibit 3	SL3	2 = TOD
114 - Enable MOE Logging	EML	1 = On	164 - Dynamic Phase Length Short Inhibit 4	SL4	2 = TOD
115 - Detector Low Threshold Inhibit	DLI	2 = TOD	165 - Dynamic Phase Length Short Inhibit 5	SL5	2 = TOD
116 - Detector Continue Presence Inhibit	DPI	2 = TOD	166 - Dynamic Phase Length Short Inhibit 6	SL6	2 = TOD
117 - Inhibit Detector Based On Programming	IND	2 = TOD	167 - Dynamic Phase Length Short Inhibit 7	SL7	2 = TOD
118 - Inhibit Detector Delay	IDD	2 = TOD	168 - Dynamic Phase Length Short Inhibit 8	SL8	2 = TOD
119 - Inhibit Conditional Ped	ICP	2 = TOD	169 - Coord Late Left Turn 1	CT1	2 = TOD
120 - Inhibit Transit Priority	ITP	2 = TOD	170 - Coord Late Left Turn 3	CT3	2 = TOD
121 - Red Rest Ring 1	RR1	2 = TOD	171 - Coord Late Left Turn 5	CT5	2 = TOD
122 - Red Rest Ring 2	RR2	2 = TOD	172 - Coord Late Left Turn 7	CT7	2 = TOD
123 - Omit Red Clear Ring 1	OR1	2 = TOD	173 - Dynamic Phase Length Enable A	DPA	2 = TOD
124 - Omit Red Clear Ring 2	OR2	2 = TOD	174 - Dynamic Phase Length Enable B	DPB	2 = TOD
125 - Ped Recycle Ring 1	PR1	2 = TOD	175 - Dynamic Phase Length Enable C	DPC	2 = TOD
126 - Ped Recycle Ring 2	PR2	2 = TOD	176 - Dynamic Phase Length Enable D	DPD	2 = TOD
127 - Enable MOE Log to Call Phone 1	MT1	2 = TOD	177 - Proactive Plan Select Average	PSA	2 = TOD
128 - Enable MOE Log to Call Phone 2	MT2	2 = TOD	178 - Proactive Plan Select Inbound	PSI	2 = TOD
129 - Transit Inhibit Short Time 1	IS1	2 = TOD	179 - Proactive Plan Select Outbound	PSO	2 = TOD
130 - Transit Inhibit Short Time 2	IS2	2 = TOD	180 - Split Variant Inbound	SVI	2 = TOD
131 - Transit Inhibit Short Time 3	IS3	2 = TOD	181 - Split Variant Outbound	SVO	2 = TOD
132 - Transit Inhibit Short Time 4	IS4	2 = TOD	182 - Disable Coord Walk Rest Ring 1	WR1	2 = TOD
133 - Transit Inhibit Short Time 5	IS5	2 = TOD	183 - Disable Coord Walk Rest Ring 2	WR2	2 = TOD
134 - Transit Inhibit Short Time 6	IS6	2 = TOD	184 - Proactive Plan Select New Look	NLK	2 = TOD
135 - Transit Inhibit Short Time 7	IS7	2 = TOD	185 - Disable Red Clearance Extension	DRX	2 = TOD
136 - Transit Inhibit Short Time 8	IS8	2 = TOD	186 - Detector Plan Line 1	DL1	2 = TOD
137 - Enable Transit Priority Logging	ETL	2 = TOD	187 - Detector Plan Line 2	DL2	2 = TOD
138 - Disable Flashing Yellow Arrow 1	DF1	2 = TOD	188 - Disable LRT 1 Vertical Flashing Bar	DV1	2 = TOD
139 - Disable Flashing Yellow Arrow 3	DF3	2 = TOD	189 - Disable LRT 2 Vertical Flashing Bar	DV2	2 = TOD
140 - Disable Flashing Yellow Arrow 5	DF5	2 = TOD	190 - Disable LRT 3 Vertical Flashing Bar	DV3	2 = TOD
141 - Disable Flashing Yellow Arrow 7	DF7	2 = TOD	191 - Disable LRT 4 Vertical Flashing Bar	DV4	2 = TOD
142 - Disable Auto Max	DAM	2 = TOD	192 - Datakey Enable	DKE	1 = On
143 - Disable Repeated Phase Service	DRS	2 = TOD	193 - Dynamic Phase Reversal Enable 1	DR1	2 = TOD
144 - End of Main Street	EMS	2 = TOD	194 - Dynamic Phase Reversal Enable 3	DR3	2 = TOD
145 - Coord Hold 1	HD1	2 = TOD	195 - Dynamic Phase Reversal Enable 5	DR5	2 = TOD
146 - Coord Hold 2	HD2	2 = TOD	196 - Dynamic Phase Reversal Enable 7	DR7	2 = TOD
147 - Coord Hold 3	HD3	2 = TOD	197 - Enable Coordination Log	ECL	1 = On
148 - Coord Hold 4	HD4	2 = TOD	198 - Disable Gap For FYLTA	DGF	2 = TOD
149 - Coord Hold 5	HD5	2 = TOD	199 - Coordination Auto Walk	CAW	2 = TOD
150 - Coord Hold 6	HD6	2 = TOD			

PREEMPTION SEQUENCE 1 - 4 (Next/2/5)

Seq	Interval	Instruction	Phases Serviced	Interval Time	Hold On Input	Output On	Output Mode	
1	1	197	- - - 4 - - - -	0	On	- - - - - - - -	0	Instructions - 0 = service phases defined in phases location 1-9 = use special intervals 1-9 10 = preempt sequence allows fylta 11 = preempt interval disables fylta 15 = alternate trap protection 90 = go to all red 91 = turn cvm off 92 = turn cvm on 93 = enable ped service and phases defined in phases location 94 = disable ped service 96 = enable coordination w/peds 97 = enable coordination w/o peds 98 = return with no calls 99 = return with ped calls and phases defined in phases location 100 = jump to step defined in time location and input has to be active for jump 101 = use time as resettable gap timer and service phases defined in phases location 196 = coordination sync w/peds 197 = coordination sync w/o peds 200 = lrt phase service w/o peds 201 = lrt phase service w/peds 202 = priority return-queue/delay 216 = lrt coordination sync w/peds 217 = lrt coordination sync w/o peds Phases Serviced - phases 1 - 8 Interval Time - 0 - 255 sec or interval 1 - 10 Hold on Input - X = on Outputs On - output 1 - 8 Output Modes - 0 = all steady on 1 = all flash together 2 = odd flashes WIG, even flashes WAG 3 = 1 - 4 steady on, 5 - 8 all flash together
	2	98	- - - - - - - -	0	Off	- - - - - - - -	0	
	3	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	4	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	5	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	6	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	7	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	8	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	9	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	10	0	- - - - - - - -	0	Off	- - - - - - - -	0	
2	1	197	- - 3 - - - - 8	0	On	- - - - - - - -	0	
	2	98	- - - - - - - -	0	Off	- - - - - - - -	0	
	3	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	4	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	5	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	6	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	7	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	8	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	9	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	10	0	- - - - - - - -	0	Off	- - - - - - - -	0	
3	1	197	- - - - - 7 -	0	On	- - - - - - - -	0	
	2	98	- - - - - - - -	0	Off	- - - - - - - -	0	
	3	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	4	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	5	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	6	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	7	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	8	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	9	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	10	0	- - - - - - - -	0	Off	- - - - - - - -	0	
4	1	197	- 2 - - 5 - - -	0	On	- - - - - - - -	0	
	2	98	- - - - - - - -	0	Off	- - - - - - - -	0	
	3	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	4	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	5	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	6	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	7	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	8	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	9	0	- - - - - - - -	0	Off	- - - - - - - -	0	
	10	0	- - - - - - - -	0	Off	- - - - - - - -	0	

SEQUENCE TIMING (Next/2/5/0)										
Sequence		1	2	3	4	5	6	7	8	
Input Memory										X = on
Input Priority		6	6	6	6	0	0	0	0	0 = lowest, - 8 = highest
Entry (Transition) Parameters	Min Green	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec 0.0 would time the normal function time
	Walk	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	
	Ped Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Overlap Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec
	Overlap Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Delay to Preempt	0	0	0	0	0	0	0	0	0 - 255 sec
	Delay Ped Omit	0	0	0	0	0	0	0	0	
	Delay Phase Omit	0	0	0	0	0	0	0	0	
Min Reservice		0	0	0	0	0	0	0	0	0 - 255 min
Overlap Inhibits		A								X = on
		B								
		C								
		D								
Exit Parameters	Exit to Coord Plan Offset by X	0	0	0	0	0	0	0	0	0 - 20
	Exit Coord Plan Time	0	0	0	0	0	0	0	0	0 - 60 min
	Exit to Max Plan	0	0	0	0	0	0	0	0	0 - 8
	Exit Free Time	0	0	0	0	0	0	0	0	0 - 60 min
	Override Time	0	0	0	0	0	0	0	0	
	Fail Time	0	0	0	0	0	0	0	0	
	Exit Mode Time	0	0	0	0	0	0	0	0	

PRIORITY RETURN AND SPECIAL INTERVALS (Next/2/5/0/6, Next/2/5/9)														
Phase / Overlap		1	2	3	4	5	6	7	8	A	B	C	D	
Priority Return	Enable	Off	0 = disabled; 1 = enabled; 2 = enabled and skip preempt phase on exit											
	A (max)	0	0	0	0	0	0	0	0	0 - 100% of currently used max				
	B (max)	0	0	0	0	0	0	0	0					
	C (max)	0	0	0	0	0	0	0	0					
	D (max)	0	0	0	0	0	0	0	0					
	E (max)	0	0	0	0	0	0	0	0					
	Ped Clear	0	0	0	0	0	0	0	0	0	0 - 100% of currently used ped clearance			
Queue Delay Recovery		0	0	0	0	0	0	0	0	0 - 255 sec				
Special Intervals	1	0	0	0	0	0	0	0	0	0	0	0	0	0 = Dark 1 = green don't walk 2 = green walk 3 = green flashing don't walk 4 = yellow 5 = red 6 = flashing yellow WIG 7 = flashing yellow WAG 8 = flashing red WIG 9 = flashing red WAG 10 = walk only 11=flashing don't walk only
	2	0	0	0	0	0	0	0	0	0	0	0	0	
	3	0	0	0	0	0	0	0	0	0	0	0	0	
	4	0	0	0	0	0	0	0	0	0	0	0	0	
	5	0	0	0	0	0	0	0	0	0	0	0	0	
	6	0	0	0	0	0	0	0	0	0	0	0	0	
	7	0	0	0	0	0	0	0	0	0	0	0	0	
	8	0	0	0	0	0	0	0	0	0	0	0	0	
	9	0	0	0	0	0	0	0	0	0	0	0	0	

LIGHT RAIL TRAIN (Next/2/5/0/7)					
Light Rail Train	1	2	3	4	
Associated Preempt	0	0	0	0	0 = none, preempt 1 - 8
Time to Green	0	0	0	0	0 - 255 sec
Horizontal Bar Flash Time	0.0	0.0	0.0	0.0	
Vertical Bar Flash Time	0.0	0.0	0.0	0.0	0.0 - 25.5 sec
Min Duration	0	0	0	0	0 - 255 sec

Miscellaneous Data

TRANSIT PRIORITY (Next/2/7)

	1	2	3	4	5	6	7	8	
Phases	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	Phases 1 - 8 (max of 2 compatible phases)
PE Enable (6.25Hz TP call on PE)	X	X	X	X	X	X	X	X	X = 6.25 Hz signal will activate TP
Priority	0	0	0	0	0	0	0	0	0 - 8, 8 = highest
Memory									X = on
Delay Time	0	0	0	0	0	0	0	0	0 - 255 sec
Minimum Reservice Time (per input)	0	0	0	0	0	0	0	0	0 - 255 min
Override Time	0	0	0	0	0	0	0	0	0 - 255 sec
Bus Extend	0	0	0	0	0	0	0	0	0 - 255 min
Minimum Reservice Time (all inputs)	0	0 - 255 min							
Free Operation Mode	0	0 = use shortest of max 1 or 2, 1 - 8 = use max time of group 1 - 8, 9 = use time of day circuit							

TRANSIT PRIORITY ALTERNATE FORCE OFF PLANS (Next/2/7/6)

Current Coord Plan	1	2	3	4	5	6	7	8	0 = none 17 - 32 = coord plan 17 - 32
Alternate TP Force Off Plan	0	0	0	0	0	0	0	0	
Current Coord Plan	9	10	11	12	13	14	15	16	
Alternate TP Force Off Plan	0	0	0	0	0	0	0	0	

GROUP TIMING (Next/2/7/5)

	Phase -->	1	2	3	4	5	6	7	8	
Group 1	Max Times	0	0	0	0	0	0	0	0	0 - 255 sec 0 would time the normal function time
	Walk Times	0	0	0	0	0	0	0	0	
Group 2	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 3	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 4	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 5	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 6	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 7	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 8	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	

TRUCK PRIORITY (Next/2/7/9)

Truck Priority -->	1	2	3	4	
Associated Transit Priority	0	0	0	0	0 = none 1 - 8 = transit priority 1 - 8
Leading Detector	0	0	0	0	0 = none, 1 - 32 = detector 1 - 32
Trailing Detector	0	0	0	0	
Stop Bar Distance	0	0	0	0	0 - 999 feet
Trap Distance	0 . 0	0 . 0	0 . 0	0 . 0	0.0 - 99.9 feet
Minimum Speed	0	0	0	0	0 - 100 mph
Minimum Length	0	0	0	0	0 - 255 feet
Downhill Grade (%)	0	0	0	0	0 - 20%
Uphill Grade (%)	0	0	0	0	
Undersized Vehicle					X = Enabled

170 INPUTS (Next/2/8/1)

C1-39	101 - Veh Detector 9	C1-67	22 - Ped Detector 2
C1-40	113 - Veh Detector 19	C1-68	25 - Ped Detector 5
C1-41	106 - Veh Detector 14	C1-69	24 - Ped Detector 4
C1-42	118 - Veh Detector 24	C1-70	23 - Ped Detector 3
C1-43	102 - Veh Detector 10	C1-71	151 - Preempt In 1
C1-44	114 - Veh Detector 20	C1-72	152 - Preempt In 2
C1-45	107 - Veh Detector 15	C1-73	153 - Preempt In 3
C1-46	161 - Veh Detector 25	C1-74	154 - Preempt In 4
C1-47	105 - Veh Detector 13	C1-75	165 - Veh Detector 29
C1-48	117 - Veh Detector 23	C1-76	104 - Veh Detector 12
C1-49	27 - Ped Detector 7	C1-77	116 - Veh Detector 22
C1-50	164 - Veh Detector 28	C1-78	111 - Veh Detector 17
C1-51	199 - LRT Ped Inhibit	C1-79	163 - Veh Detector 27
C1-52	155 - Preempt In 5	C1-80	82 - Interval Advance
C1-53	85 - Manual Control Enable	C1-81	137 - Conflict Monitor Status/Flash
C1-54	166 - Veh Detector 30	C1-82	62 - Stop Timing Ring 1
C1-55	15 - Veh Detector 5	C11-15	254 - Pin Not Used
C1-56	11 - Veh Detector 1	C11-16	254 - Pin Not Used
C1-57	17 - Veh Detector 7	C11-17	254 - Pin Not Used
C1-58	13 - Veh Detector 3	C11-18	254 - Pin Not Used
C1-59	16 - Veh Detector 6	C11-19	254 - Pin Not Used
C1-60	12 - Veh Detector 2	C11-20	254 - Pin Not Used
C1-61	18 - Veh Detector 8	C11-21	254 - Pin Not Used
C1-62	14 - Veh Detector 4	C11-22	254 - Pin Not Used
C11-10	254 - Pin Not Used	C11-23	254 - Pin Not Used
C11-11	254 - Pin Not Used	C11-24	254 - Pin Not Used
C11-12	254 - Pin Not Used	C11-25	254 - Pin Not Used
C11-13	254 - Pin Not Used	C11-26	254 - Pin Not Used
C1-63	103 - Veh Detector 11	C11-27	254 - Pin Not Used
C1-64	115 - Veh Detector 21	C11-28	254 - Pin Not Used
C1-65	108 - Veh Detector 16	C11-29	254 - Pin Not Used
C1-66	162 - Veh Detector 26	C11-30	254 - Pin Not Used

INPUTS AND OUTPUTS OPTIONS (Next/2/8/3)

Connector Type	C1/C11	Change I/O	0 = Disabled
0 = C1/C11; 1 = MS-A/B/C/D; 2 = TS2 Port 1; 3 = ITS Cabinet		X = On (After a download without a power on - off cycle)	

170 OUTPUTS (Next/2/8/2)

C1-2	44 - Don't Walk, Ph 4	C1-35	131 - TOD Output 1
C1-3	64 - Walk, Ph 4	C1-36	132 - TOD Output 2
C1-4	14 - Red, Ph 4	C1-37	133 - TOD Output 3
C1-5	24 - Yellow, Ph 4	C1-38	134 - TOD Output 4
C1-6	34 - Green, Ph 4	C1-100	53 - Ped Clear, Ph 3
C1-7	13 - Red, Ph 3	C1-101	51 - Ped Clear, Ph 1
C1-8	23 - Yellow, Ph 3	C1-102	187 - Soft Flash
C1-9	33 - Green, Ph 3	C1-103	147 - Watchdog
C1-10	42 - Don't Walk, Ph 2	C1-83	43 - Don't Walk, Ph 3
C1-11	62 - Walk, Ph 2	C1-84	63 - Walk, Ph 3
C1-12	12 - Red, Ph 2	C1-85	116 - Overlap D, Red
C1-13	22 - Yellow, Ph 2	C1-86	115 - Overlap D, Yellow
C1-15	32 - Green, Ph 2	C1-87	114 - Overlap D, Green
C1-16	11 - Red, Ph 1	C1-88	113 - Overlap C, Red
C1-17	21 - Yellow, Ph 1	C1-89	112 - Overlap C, Yellow
C1-18	31 - Green, Ph 1	C1-90	111 - Overlap C, Green
C1-19	43 - Don't Walk, Ph 3	C1-91	47 - Don't Walk, Ph 7
C1-20	63 - Walk, Ph 3	C1-93	61 - Walk, Ph 1
C1-21	18 - Red, Ph 8	C1-94	106 - Overlap B, Red
C1-22	28 - Yellow, Ph 8	C1-95	105 - Overlap B, Yellow
C1-23	38 - Green, Ph 8	C1-96	104 - Overlap B, Green
C1-24	17 - Red, Ph 7	C1-97	103 - Overlap A, Red
C1-25	27 - Yellow, Ph 7	C1-98	102 - Overlap A, Yellow
C1-26	37 - Green, Ph 7	C1-99	101 - Overlap A, Green
C1-27	45 - Don't Walk, Ph 5	C11-1	254 - Pin Not Used
C1-28	65 - Walk, Ph 5	C11-2	254 - Pin Not Used
C1-29	16 - Red, Ph 6	C11-3	254 - Pin Not Used
C1-30	26 - Yellow, Ph 6	C11-4	254 - Pin Not Used
C1-31	36 - Green, Ph 6	C11-5	254 - Pin Not Used
C1-32	15 - Red, Ph 5	C11-6	254 - Pin Not Used
C1-33	25 - Yellow, Ph 5	C11-7	254 - Pin Not Used
C1-34	35 - Green, Ph 5	C11-8	254 - Pin Not Used

CONTROLLER ID

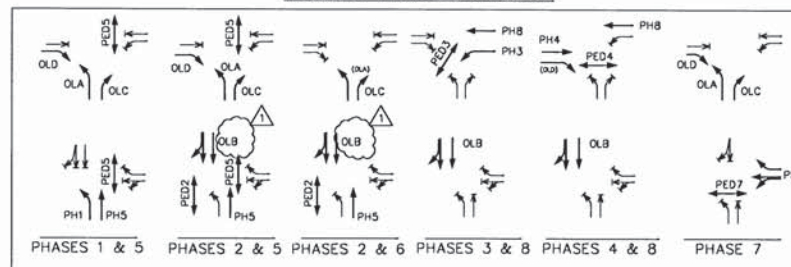
Manufacturer ID	NORTHWEST SIGNAL
Model ID	Voyage-0 v05.03.01
Protocol Revision ID	AB3418E V1

11960

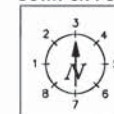
LEGEND

- (C) INSTALL MODEL 170 CONTROLLER WITH TELEPHONE DROP IN MODEL 332 CABINET WITH RISER FRAME ORIENT FRONT (LOUVERED) DOOR AS SHOWN.
- (MA) INSTALL (L) METER TRAFFIC SIGNAL MAST ARM.
- (TC) INSTALL TERMINAL CABINET.
- (PP) INSTALL PEDESTRIAN SIGNAL PEDESTAL WITH FRANGIBLE BASE.
- (PH) INSTALL PHASE (PH) PEDESTRIAN SIGNAL, PUSHBUTTON AND INSTRUCTION DECAL.
- (332) INSTALL 430mm X 255mm X 305mm (MIN. DIMENSION) PRECAST CONCRETE JUNCTION BOX WITH CONCRETE APRON.
- (559) INSTALL 559mm X 305mm X 305mm (MIN. DIMENSION) PRECAST CONCRETE JUNCTION BOX.
- (560) INSTALL 560mm X 305mm X 305mm (MIN. DIMENSION) PRECAST CONCRETE JUNCTION BOX WITH CONCRETE APRON.
- (760) INSTALL 760mm X 430mm X 305mm (MIN. DIMENSION) PRECAST CONCRETE JUNCTION BOX.
- (760) INSTALL 760mm X 430mm X 305mm (MIN. DIMENSION) PRECAST CONCRETE JUNCTION BOX WITH CONCRETE APRON.
- (CH) INSTALL CHANNEL (CH), (N) BARREL FIRE PRE-EMPTION DETECTOR UNIT.
- (CH) INSTALL CHANNEL (CH) FIRE PRE-EMPTION DETECTOR FEEDER CABLE.
- (PH) INSTALL PHASE (PH) VEHICLE SIGNAL WITH LEDS.
- (L) INSTALL (L) METER LUMINAIRE ARM.
- (250) INSTALL 250 WATT HIGH PRESSURE SODIUM COBRA HEAD HORIZONTAL CUTOFF TYPE 3, FLAT LENS LUMINAIRE, TYPE M-C-III, 240 VOLT MAG-REGULATOR BALLAST/FUSED IN POLE BASE AND CONNECTED TO 240 VOLTS.
- (400) INSTALL 400 WATT HIGH PRESSURE SODIUM COBRA HEAD HORIZONTAL CUTOFF TYPE 3, FLAT LENS LUMINAIRE, TYPE M-C-III, 240 VOLT MAG-REGULATOR BALLAST/FUSED IN POLE BASE AND CONNECTED TO 240 VOLTS.
- (SPECIAL) INSTALL SPECIAL (NON-STANDARD) TRAFFIC SIGNAL MAST ARM POLE (SEE SPECIAL PROVISIONS).
- (SPECIAL) INSTALL SPECIAL (NON-STANDARD) TRAFFIC SIGNAL MAST ARM POLE WITH LUMINAIRE POLE EXTENSION (10.7 METER MOUNTING HEIGHT).
- (PE) INSTALL PHOTOELECTRIC CELL ON POLE (6m-11m ABOVE POLE BASE).
- (S) INSTALL (S) mm ELECTRICAL CONDUIT.
- (DC) DETECTOR CONDUIT (SEE DETECTOR PLAN).
- (W) INSTALL CONDUIT AND WIRE AS REQUIRED BY POWER COMPANY.
- (PH) INSTALL PHASE (PH) PROGRAMMED VEHICLE SIGNAL.
- (N-C) INSTALL (N) NO. 8 TYPE THWN (SIGNAL SYSTEM COMMON).
- (N-G) INSTALL (N) NO. (G) TYPE THWN WRES.
- (N-G) INSTALL (N) NO. (G) TYPE XHHW WRES.
- (PL) INSTALL POLY PULL LINE (1KN MIN. STRENGTH)
- (TEL) INSTALL AS REQUIRED BY TELEPHONE COMPANY.
- (PH) INCLUDES 3 SPARE WIRES FOR PHASE (PH) AS PER TABLE.
- (RETAIN) RETAIN AND PROTECT EXISTING LUMINAIRE POLE
- (SC) INSTALL SERVICE CABINET, 240 VOLT, FOR BOTH SIGNAL AND ILLUMINATION CIRCUITS.
- (M2) INSTALL 240 VOLT METER BASE.
- (CW) INSTALL CROSSWALK CLOSURE SIGNS (BOTH SIDES OF POST).
- (AL) INSTALL ALUMINUM STREET NAME SIGN "10TH ST" ON SIGNAL MAST ARM (SEE DETAIL "A")
- (AL) INSTALL ALUMINUM STREET NAME SIGN ON SIGNAL MAST ARM (SEE DETAIL "B")
- (REMOVE) REMOVE EXISTING LUMINAIRE AND WOOD POLE. DISCONNECT WIRING FROM EXISTING OVERHEAD LINES ON SALAMO ROAD.
- (C) INTERCONNECT CONDUIT (SEE DETECTOR PLAN).
- (AL) INSTALL ALUMINUM (762mm X 914mm, TYPE W7) RIGHT ARROW "ONLY" SIGN (DIAMOND GRADE SHEETING).
- (VP) INSTALL VEHICLE SIGNAL PEDESTAL WITH TRANSFORMER BASE.
- (WOOD) INSTALL STAND ALONE PHONE MODEM IN CONTROLLER CABINET. (SEE SPECIAL PROVISIONS)
- (RPS) INSTALL REMOTE POWER SERVICE POST.
- (REMOVE) REMOVE AND RELOCATE EXISTING LUMINAIRE POLE. REMOVE FOUNDATION.
- (REINSTALL) REINSTALL LUMINAIRE POLE OR NEW FOUNDATION AND RECOMMENDED WIRING.

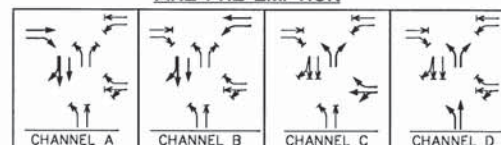
NORMAL PHASE ROTATION



ORIENTATION LOOKING DOWN ON POLE



FIRE PRE EMPTION



OLA = 5,6,7
 OLB = 2,3,4
 OLC = 3,5,6,7
 OLD = 4,5,7
 PH7 = EXCLUSIVE

POLE ENTRANCE CHART

POLE NUMBER	1	2	3	4	5	6	7	8	9	10	11
LUMINAIRE ARM	5	7	1	-	-	-	8	2	-	4	-
MAST ARM	5	7	1	-	-	-	8	2	-	4	-
PEDESTRIAN SIGNAL	5	5	5	5,7	7	2	2,8	-	-	5	1,4
PEDESTRIAN PB	3	7	7	1,3	5	4	6,8	-	-	7	2,4
TERMINAL CABINET	1	3	5	-	-	-	-	4	6	-	8
VEHICLE SIGNAL	-	-	-	-	-	-	2	-	8	-	-



DETAIL "A"



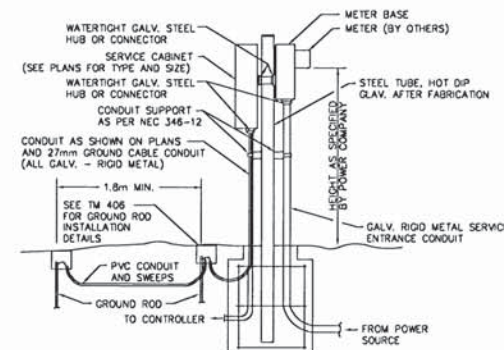
DETAIL "B"

ABBREVIATIONS

T = TYPE SHOWN
 PH = PHASE SHOWN
 X = NUMBER OF CABLES SHOWN
 E = ELEVATOR PLUMBIZER
 H = HEIGHT SHOWN
 L = LENGTH SHOWN
 N = NUMBER SHOWN
 G = AWG SIZE SHOWN
 S = SIZE SHOWN
 A = STANDARD PLUMBIZER
 CH = CHANNEL SHOWN
 P = POLE MOUNT

SIGNAL HEAD TYPES

2 = 305mm R, 305mm Y, 305mm G
 3 = 305mm RLTA, 305mm YLTA, 305mm GLTA
 5 = 305mm RRTA, 305mm YRTA, 305mm GRTA



REMOTE POWER SERVICE POST (UNDERGROUND)

(SEE TM404 FOR DETAILS)

ADDED NOTE: REMOVED VEHICLE PHASE 2 INPUT, ASSIGNED TO OVERLAP B

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	TRAFFIC SIGNAL LEGEND WEST LINN, OR		
DESIGNED BY: <u>PER</u> CHECKED BY: <u>PER</u> DRAWN BY: <u>ACH</u>	DATE: <u>APRIL 2000</u> ACCOMPANIED BY: <u>DWS</u>	SHEET NO.: <u>TS-3</u> THIS SHEET NO.: <u>11960</u>	

Intersection Name: I-205 NB @ 10th
Controller 122323.2 Channel: - Drop: 0
System: TransCore TransSuite TCS
Controller Type: Voyage
Revision - Version -
TransCore Unified Controller Manager 10.3.1

Zero Tables

Dual Entry
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Controller Function and Timing

Security, Sequence and Timing (Next/2/1, Next/2/2/3/A, Next/2/2/5)					
Security Code	0	0 = disabled, or 1000-9999	First All Red	8.0	0.0 to 25.5 seconds
Sequence	7	0 = sequential, 1 = quad left turn, 2-6 = special A-E, 7 = lead lag			
Power up Flash	0.0	0.0 - 25.5 seconds			

Initialization (Next/2/2/5)			Lead Lag (Next/2/2/3/A)			
Ring 1	Ring 2	Interval	Phases 1 - 2	Phases 3 - 4	Phases 5 - 6	Phases 7 - 8
0	5	0	2	2	2	2
Phase 1 - 8		0 = Red, 1 = Yel, 2 = Grn	0 = no reversal, 1 = reversal, 2 = by coord plan or clock			

(Next/2/2/3)		Phase Functions		(Next/2/2/1)	
Phase Used	- 2 - - 5 6 - 8		Yellow Lock	- - - - - - - -	
Restricted Phases	- - - - - - - -		Min Recall	- 2 - - - 6 - -	
Exclusive Phases	- - - - - - - -		Max Recall	- - - - - - - -	
			Ped Recall	- - - - - - - -	
			Red Lock	- - - - - - - -	
			Max Out Recall Inhibit	1 2 3 4 5 6 7 8	
			Soft Recall	- - - - - - - -	
			Free Walk Rest	- - - - - - - -	
			Conditional Ped	- - - - - - - -	
			Disable Inhibit Max Termination	- - - - - - - -	
			Call To Non-Act 1	- - - - - - - -	
			Call To Non-Act 2	- - - - - - - -	

Phase Times (Next/2/2/2)									
Phase	1	2	3	4	5	6	7	8	
Movement									
Minimum Green	0	10	0	0	4	10	0	6	0 - 255 sec.
Passage	0.0	6.9	0.0	0.0	2.3	6.9	0.0	2.3	0.0 - 25.5 sec.
Yellow	0.0	4.0	0.0	0.0	4.0	4.0	0.0	4.0	0.0 - 25.5 sec.
Red Clearance	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0 - 25.5 sec. or 0 - 255 sec.
Max 1	0	30	0	0	25	30	0	20	0 - 255 sec.
Max 2	0	30	0	0	25	30	0	20	0 - 255 sec.
Walk	0	7	0	0	0	7	0	0	0 - 255 sec.
Ped Clear	0	14	0	0	0	10	0	0	0 - 255 sec.
Seconds Per Actuation	0.0	1.2	0.0	0.0	0.0	1.2	0.0	0.0	0.0 - 25.5 sec.
Time Before Reduction	0	10	0	0	8	10	0	8	0 - 255 sec.
Time to Reduce	0	10	0	0	3	10	0	3	0 - 255 sec.
Minimum Gap	0.0	4.9	0.0	0.0	0.5	4.9	0.0	0.5	0.0 - 25.5 sec.
Max Variable Initial	0	15	0	0	4	15	0	6	0 - 255 sec.
Max Extend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Auto Max	0	0	0	0	0	0	0	0	0 - 255 sec.
Advanced walk	0	0	0	0	0	0	0	0	0 - 255 sec.

Phase Times (Next/2/2/9/5)									
Inhibit Min Yellow									X = On
Red Decimal Off									X = On

Dual Entry (Next/2/2/9/3)

Mode	0	0 = off, 1 = on, 2 = Not Used, 3 = by coord plan, 4 = by time clock circuit 61
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Dual Entry Ph -->	1	2	3	4	5	6	7	8	
Phase	0	0	0	0	0	0	0	0	0 = none, 1-8 = phase 1-8

Cond Service (Next/2/2/9/3/A)			5 Sec Head Logic (Next/2/2/9/4)						
	Mode	CS Max Time	X Omits Y		Anti-Trap		Yellow Blanking LT		
Phase 1	0	0	X:Y		Trap Protected Phase	Next Phase	Phase		
Phase 3	0	0	6:1	0	1	0	< (5)	1	0
Phase 5	0	0	8:3	0	3	0	< (7)	3	0
Phase 7	0	0	2:5	0	5	0	< (1)	5	0
0 = off, 1 = C.S.On. 2 = C.S. on by TOD circuit 57, 3 = N/A, 4 = C.S. and C.R. On, 5 = C.R. on by TOD circuit 57.			4:7	0	7	0	< (3)	7	0
			0 = off, 1 = side call, 2 = no side call		X = On				

Other Controller Functions (Next/2/2/9/1, Next/2/2/9/5)

Inhibit Simultaneous Gap Out	1 - 3 4 5 - 7 8	
Last Car Passage	2	0 = recall phase, 1 = last car passage, 2 = NOT recall - Not last car passage
Red Revert (+2seconds)	0.0	0 - 25.5 sec.
Auto Ped Clear	On	X = On
FDW thru Yellow	Off	X = On
Red Rest Delay	0.0	0 - 25.5 sec.
Change Sequence	Off	X = On (After a download without a power on - off cycle)
Advanced Flash Rate	60 FPM	0 = Disabled (60 FPM), 1 = 120 FPM
Ped Push Button Time	null	0 = Disable, 0 - 5 Seconds

Phase -->	1	2	3	4	5	6	7	8	
Red Clear Extension Detector	0	0	0	0	0	0	0	0	0 = none 1 - 32 = detector 1 - 32
Red Clear Extension Red Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec.

Local Detectors (Next/2/2/4/1)

Detector Data

Detector	Description	Yellow Lock	Detector Inhibit	Call Phase	Extend Phase	Switch Phase	Delay Time	Stretch / Disconnect Time	Delay or Disconnect Mode
1				1	1	0	0	0.0	0
2				1	1	0	0	0.0	0
3				3	3	0	0	0.0	0
4				3	3	0	0	0.0	0
5				5	5	0	0	0.0	0
6				5	5	0	0	0.0	0
7				7	7	0	0	0.0	0
8				7	7	0	0	0.0	0
9				2	2	0	0	0.0	0
10				2	2	0	0	0.0	0
11				2	2	0	0	0.0	0
12				2	2	0	0	5.0	0
13				2	2	0	0	0.0	0
14				8	8	0	0	2.0	0
15				8	8	0	0	2.0	0
16				4	4	0	0	0.0	0
17				4	4	0	0	0.0	0
18				4	4	0	0	0.0	0
19				6	6	0	0	0.0	0
20				6	6	0	0	0.0	0
21				6	6	0	0	0.0	0
22				6	6	0	0	0.0	0
23				6	6	0	0	0.0	0
24				8	8	0	0	0.0	0
25				8	8	0	0	2.0	0
26				8	8	0	0	0.0	0
27				8	8	0	0	0.0	0
28				8	8	0	0	0.0	0
29				0	0	0	0	0.0	0
30				0	0	0	0	0.0	0
31				0	0	0	0	0.0	0
32				0	0	0	0	0.0	0

yellow lock, detector inhibit, - X = On; call, extend, phase - 0 = none 1 - 8 = phase 1 - 8; delay time - 0 - 255 sec
stretch / disconnect time - 0.0 - 25.5 sec.; delay or disconnect Mode - 0 -12

Local Detectors 33 - 64 (Next/2/2/4/6)

Detector Data

Detector	Description	Yellow Lock	Detector Inhibit	Call Phase	Extend Phase	Switch Phase	Delay Time	Stretch / Disconnect Time	Delay or Disconnect Mode
33		N/A	N/A	0	0	N/A	N/A	N/A	N/A
34		N/A	N/A	0	0	N/A	N/A	N/A	N/A
35		N/A	N/A	0	0	N/A	N/A	N/A	N/A
36		N/A	N/A	0	0	N/A	N/A	N/A	N/A
37		N/A	N/A	0	0	N/A	N/A	N/A	N/A
38		N/A	N/A	0	0	N/A	N/A	N/A	N/A
39		N/A	N/A	0	0	N/A	N/A	N/A	N/A
40		N/A	N/A	0	0	N/A	N/A	N/A	N/A
41		N/A	N/A	0	0	N/A	N/A	N/A	N/A
42		N/A	N/A	0	0	N/A	N/A	N/A	N/A
43		N/A	N/A	0	0	N/A	N/A	N/A	N/A
44		N/A	N/A	0	0	N/A	N/A	N/A	N/A
45		N/A	N/A	0	0	N/A	N/A	N/A	N/A
46		N/A	N/A	0	0	N/A	N/A	N/A	N/A
47		N/A	N/A	0	0	N/A	N/A	N/A	N/A
48		N/A	N/A	0	0	N/A	N/A	N/A	N/A
49		N/A	N/A	0	0	N/A	N/A	N/A	N/A
50		N/A	N/A	0	0	N/A	N/A	N/A	N/A
51		N/A	N/A	0	0	N/A	N/A	N/A	N/A
52		N/A	N/A	0	0	N/A	N/A	N/A	N/A
53		N/A	N/A	0	0	N/A	N/A	N/A	N/A
54		N/A	N/A	0	0	N/A	N/A	N/A	N/A
55		N/A	N/A	0	0	N/A	N/A	N/A	N/A
56		N/A	N/A	0	0	N/A	N/A	N/A	N/A
57		N/A	N/A	0	0	N/A	N/A	N/A	N/A
58		N/A	N/A	0	0	N/A	N/A	N/A	N/A
59		N/A	N/A	0	0	N/A	N/A	N/A	N/A
60		N/A	N/A	0	0	N/A	N/A	N/A	N/A
61		N/A	N/A	0	0	N/A	N/A	N/A	N/A
62		N/A	N/A	0	0	N/A	N/A	N/A	N/A
63		N/A	N/A	0	0	N/A	N/A	N/A	N/A
64		N/A	N/A	0	0	N/A	N/A	N/A	N/A

yellow lock, detector inhibit, - X = On; call, extend, phase - 0 = none 1 - 8 = phase 1 - 8; delay time - 0 - 255 sec
stretch / disconnect time - 0.0 - 25.5 sec.; delay or disconnect Mode - 0 - 12

Detector Plans (Next/2/2/4/5)

Loop Number										
Plan Detectors		0	0	0	0	0	0	0	0	0 - 32, 0 = none, 1 - 32 = detectors 1- 32
Detector Plan 1	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extended Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	0 - 255 seconds
	Stretch / Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 seconds
	Delay / Disconnect Mode	0	0	0	0	0	0	0	0	0 - 14
Detector Plan 2	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extended Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	0 - 255 seconds
	Stretch / Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 seconds
	Delay / Disconnect Mode	0	0	0	0	0	0	0	0	0 - 14
Detector Plan 3	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extended Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	0 - 255 seconds
	Stretch / Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 seconds
	Delay / Disconnect Mode	0	0	0	0	0	0	0	0	0 - 14

Detector Fail (Next/2/2/4/3)

Detector Fail Sample Period (all detectors)		0	0 - 255 minutes							
Dynamic Phase Length Fail Period		0	0 - 255 minutes							
Video Fail Inputs	1	2	3	4	5	6	7	8	0 = none, 1 - 8 = phase 1 - 8	
Phase Recalled	0	0	0	0	0	0	0	0		
System Detectors	1	2	3	4	5	6	7	8	0 = none, 1 - 32 = detector 1 - 32	
Local Detector	5	9	14	15	19	20	0	0		

Flash (Next/2/2/5)

Flash Entry			Flash Exit		
Ring 1	Ring 2	Interval	Ring 1	Ring 2	Interval
0	0	red	0	5	0
0 = none, phase 1 - 8		0 = red, 1 = yel, 2 = grn	0 = none, phase 1 - 8		0 = red, 1 = yel, 2 = grn

Soft Flash (Next/2/2/5/A)

Phase	1	2	3	4	5	6	7	8				
	3	4	3	4	3	4	3	4				
Overlap	A	B	C	D	E	F	G	H	I	J	K	L
	3	4	3	4	3	4	3	4	3	4	3	4
0 = dark, 1=flash yel WIG, 2 = flash yel WAG, 3 = flash red WIG, 4 = flash red WAG												

Internal Logic Output	1	2	3	4	5	6	7	8	9	10	11	12	0 = normal, 1 = dark, 2 = flash WIG
	0	0	0	0	0	0	0	0	0	0	0	0	

Flashing Yellow Left Turn Arrow (FYLTA) (Next/2/2/8/6)

Phase Pairs ->	1 - 2	3 - 4	5 - 6	7 - 8	
Enable	0	0	4	0	0 = off, 3 = 3 outputs, 4 = 4 outputs, 5 = 5 outputs
Even Omits Odd	0	0	0	0	0 / 1 / 2
Detector Switch Odd / Even	1	1	1	1	X = on, odd phase must be omitted
Red Transition	2 . 0	2 . 0	3 . 0	2 . 0	0.0 or 2.0 - 25.5 sec.
Red Extension	0 . 0	0 . 0	3 . 0	0 . 0	0.0 - 25.5 sec.
Return to GLTA	0	0	0	0	0 = off, 1 = max out, 2= yellow lock

Gap Dependent FYLTA					
Detector Input	0	0	0	0	0 = Disabled, 1 - 64 = Local Detector 1 - 64
Minimum Delay	0	0	0	0	0 - 255 seconds
Detector Gap Time	0 . 0	0 . 0	0 . 0	0 . 0	0 - 25.5 seconds.
Maximum Delay	0	0	0	0	0 - 255 seconds
Not Ped	0	0	4	0	

Dynamic Flashing Yellow Left Turn Arrow

Phase Pairs	1 - 2	3 - 4	5 - 6	7 - 8	
[Plan A] Detector Input	0	0	0	0	Detectors 1 - 64; 0 = disabled
Detector Gap Time	0 . 0	0 . 0	0 . 0	0 . 0	0.0 - 25.5
FYLTA Max Delay	0	0	0	0	0 - 255
FYLTA Min Delay	0	0	0	0	0 - 255
Not Ped Mode	0	0	0	0	0 - 4

[Plan B] Detector Input	0	0	0	0	Detectors 1 - 64; 0 = disabled
Detector Gap Time	0 . 0	0 . 0	0 . 0	0 . 0	0.0 - 25.5
FYLTA Max Delay	0	0	0	0	0 - 255
FYLTA Min Delay	0	0	0	0	0 - 255
Not Ped Mode	0	0	0	0	0 - 4

[Plan C] Detector Input	0	0	0	0	Detectors 1 - 64; 0 = disabled
Detector Gap Time	0 . 0	0 . 0	0 . 0	0 . 0	0.0 - 25.5
FYLTA Max Delay	0	0	0	0	0 - 255
FYLTA Min Delay	0	0	0	0	0 - 255
Not Ped Mode	0	0	0	0	0 - 4

[Plan D] Detector Input	0	0	0	0	Detectors 1 - 64; 0 = disabled
Detector Gap Time	0 . 0	0 . 0	0 . 0	0 . 0	0.0 - 25.5
FYLTA Max Delay	0	0	0	0	0 - 255
FYLTA Min Delay	0	0	0	0	0 - 255
Not Ped Mode	0	0	0	0	0 - 4

CoordinationData		
Coordination Modes (Next/2/3/1)		
Flash Mode	3 3	0=off, 1=on, 33=time clock, 34=comm, 35=hardwire
Coordination Plan Mode	3 4	0=free, 1-32 = coord plan 1-32, 33=time clock, 34=comm, 35=hardwire
Offset Seeking Mode	2	0=add only, 1= dwell, 2=fastway
Late Ped	0	0 = off, 1 = on
Coord Walk Rest	0	0 = off, 1 = on, 2 = by tod circuit 160, 3 = end of walk, 4 = coord ped during perms
Zero Mode(TS2 only)	0	0=start of main street, 1=end of main street, 2=by TOD circuit 144, 3 = first green
(Next/2/3/4/1)		
Repeated Ped Service	0	0=off, 1=on (no coord ped), 2=on (beginning green coord ped), 3=on (coord ped always)
Omit Phase During Repeated Phase	- - - - -	-- = service allowed ; # = service prevented

Coordination Plans (Next/2/3/2)								
Coord Plan	Coordination Phases		Cycle Length	Offset Time	Min Cycle Len Dwell Time	Permissive	Service Plan	Max Plan
	Ring 1	Ring 2						
1	0	6	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0
	0 - 8		0 - 255 sec				0 - 8	

Circuit Mapping (Next/2/3/3)

Circuit Map	Coord Plan	Time Clock Circuit							
		1	2	3	4	5	6	7	8
1	34	0	0	0	0	0	0	0	0
2	34	0	0	0	0	0	0	0	0
3	34	0	0	0	0	0	0	0	0
4	34	0	0	0	0	0	0	0	0
5	34	0	0	0	0	0	0	0	0
6	34	0	0	0	0	0	0	0	0
7	34	0	0	0	0	0	0	0	0
8	34	0	0	0	0	0	0	0	0
9	34	0	0	0	0	0	0	0	0
10	34	0	0	0	0	0	0	0	0
11	34	0	0	0	0	0	0	0	0
12	34	0	0	0	0	0	0	0	0
13	34	0	0	0	0	0	0	0	0
14	34	0	0	0	0	0	0	0	0
15	34	0	0	0	0	0	0	0	0
16	34	0	0	0	0	0	0	0	0
17	34	0	0	0	0	0	0	0	0
18	34	0	0	0	0	0	0	0	0
19	34	0	0	0	0	0	0	0	0
20	34	0	0	0	0	0	0	0	0

coord plan - 0 = free, 1 - 32 = coord plan 1 - 32, 33 = any, 34 none selected
time clock circuits - 0 = not used, or circuits 6 - 199

Dynamic Phase Lengths (Next/2/3/4/4)

Phase ->		1	2	3	4	5	6	7	8	
Back Detector		0	9	0	0	5	19	0	29	0 = none, 1-32 = detector 1-32
Lane Factor		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 = none, 0.5 - 5.0
Check Out Detector		0	0	0	0	0	20	0	0	0 = none, 1-32 = detector 1-32
Coord Delta Force Off	Set A	0	0	0	0	0	0	0	0	0 - 255 sec
	Set B	0	0	0	0	0	0	0	0	
	Set C	0	0	0	0	0	0	0	0	
	Set D	0	0	0	0	0	0	0	0	
Free Delta Max	Set A	0	0	0	0	0	0	0	0	
	Set B	0	0	0	0	0	0	0	0	
	Set C	0	0	0	0	0	0	0	0	
	Set D	0	0	0	0	0	0	0	0	

Auto Permissive Min Green (Next/2/3/4/3)

Phase ->	1	2	3	4	5	6	7	8	
Auto Perm Min Green	0	0	0	0	0	0	0	0	0 - 255 sec.

WEEK PROGRAM (Next/2/4/2)							
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	1	1	1	1	1	2
2	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1

0 = none, 1 - 15 = day plan

EXCEPTION DAYS (Next/2/4/6)					
	Week of Month	Month	Day of Month	Day of Week	Day Prog
1	0	0	0		0
2	0	0	0		0
3	0	0	0		0
4	0	0	0		0
5	0	0	0		0
6	0	0	0		0
7	0	0	0		0
8	0	0	0		0
9	0	0	0		0
10	0	0	0		0
11	0	0	0		0
12	0	0	0		0
13	0	0	0		0
14	0	0	0		0
15	0	0	0		0
16	0	0	0		0
17	0	0	0		0
18	0	0	0		0
19	0	0	0		0
20	0	0	0		0
21	0	0	0		0
22	0	0	0		0
23	0	0	0		0
24	0	0	0		0
25	0	0	0		0
26	0	0	0		0
27	0	0	0		0
28	0	0	0		0
29	0	0	0		0
30	0	0	0		0
31	0	0	0		0
32	0	0	0		0
33	0	0	0		0
34	0	0	0		0
35	0	0	0		0
	0 - 5	0 - 12	1 - 31	1 - 7	0 - 15

CIRCUIT OVERRIDES 1 - 100 (Next/2/4/4)

1 - Coord Line 1	CL1	2 = TOD	51 - Ped Omit 3	PO3	2 = TOD
2 - Coord Line 2	CL2	2 = TOD	52 - Ped Omit 4	PO4	2 = TOD
3 - Coord Line 4	CL4	2 = TOD	53 - Ped Omit 5	PO5	2 = TOD
4 - Coord Line 8	CL8	2 = TOD	54 - Ped Omit 6	PO6	2 = TOD
5 - Coord Line 16	C16	2 = TOD	55 - Ped Omit 7	PO7	2 = TOD
6 - Coordinated Operation	CRD	2 = TOD	56 - Ped Omit 8	PO8	2 = TOD
7 - Soft Flash	SFL	2 = TOD	57 - Conditional Service	CVS	2 = TOD
8 - Enable System Relays	ESR	2 = TOD	58 - Inhibit Simultaneous Gap Out	ISG	1 = On
9 - Call to Non Actuated Ring 1	CN1	2 = TOD	59 - Inhibit Hardwire	HWI	2 = TOD
10 - Call to Non Actuated Ring 2	CN2	2 = TOD	60 - Ped Override Mode	POM	1 = On
11 - Walk Rest Modifier	WRM	2 = TOD	61 - Dual Entry	DLE	1 = On
12 - Min Recall	MIN	2 = TOD	62 - Exclusive Ped	EPD	2 = TOD
13 - Max 2 Both Rings	MX2	2 = TOD	63 - Call to Time Clock Mode	CTC	2 = TOD
14 - Coord Inhibit Max Ring 1	IM1	2 = TOD	64 - Dual Enhanced Ped	DEP	2 = TOD
15 - Coord Inhibit Max Ring 2	IM2	1 = On	65 - Service Plan 1	SP1	2 = TOD
16 - Call to Free	CTF	2 = TOD	66 - Service Plan 2	SP2	2 = TOD
17 - TOD Output 1	TO1	2 = TOD	67 - Service Plan 3	SP3	2 = TOD
18 - TOD Output 2	TO2	2 = TOD	68 - Service Plan 4	SP4	2 = TOD
19 - TOD Output 3	TO3	2 = TOD	69 - Service Plan 5	SP5	2 = TOD
20 - TOD Output 4	TO4	2 = TOD	70 - Service Plan 6	SP6	2 = TOD
21 - TOD Output 5	TO5	2 = TOD	71 - Service Plan 7	SP7	2 = TOD
22 - TOD Output 6	TO6	2 = TOD	72 - Service Plan 8	SP8	2 = TOD
23 - TOD Output 7	TO7	2 = TOD	73 - Max Plan 1	MP1	2 = TOD
24 - TOD Output 8	TO8	2 = TOD	74 - Max Plan 2	MP2	2 = TOD
25 - Vehicle Call Phase 1	VC1	2 = TOD	75 - Max Plan 3	MP3	2 = TOD
26 - Vehicle Call Phase 2	VC2	2 = TOD	76 - Max Plan 4	MP4	2 = TOD
27 - Vehicle Call Phase 3	VC3	2 = TOD	77 - Max Plan 5	MP5	2 = TOD
28 - Vehicle Call Phase 4	VC4	2 = TOD	78 - Max Plan 6	MP6	2 = TOD
29 - Vehicle Call Phase 5	VC5	2 = TOD	79 - Max Plan 7	MP7	2 = TOD
30 - Vehicle Call Phase 6	VC6	2 = TOD	80 - Max Plan 8	MP8	2 = TOD
31 - Vehicle Call Phase 7	VC7	2 = TOD	81 - Transit Priority Max Group 1	TG1	2 = TOD
32 - Vehicle Call Phase 8	VC8	2 = TOD	82 - Transit Priority Max Group 2	TG2	2 = TOD
33 - Ped Call Phase 1	PC1	2 = TOD	83 - Transit Priority Max Group 3	TG3	2 = TOD
34 - Ped Call Phase 2	PC2	2 = TOD	84 - Transit Priority Max Group 4	TG4	2 = TOD
35 - Ped Call Phase 3	PC3	2 = TOD	85 - Transit Priority Max Group 5	TG5	2 = TOD
36 - Ped Call Phase 4	PC4	2 = TOD	86 - Transit Priority Max Group 6	TG6	2 = TOD
37 - Ped Call Phase 5	PC5	2 = TOD	87 - Transit Priority Max Group 7	TG7	2 = TOD
38 - Ped Call Phase 6	PC6	2 = TOD	88 - Transit Priority Max Group 8	TG8	2 = TOD
39 - Ped Call Phase 7	PC7	2 = TOD	89 - Inhibit Gap Reducing 1	GR1	2 = TOD
40 - Ped Call Phase 8	PC8	2 = TOD	90 - Inhibit Gap Reducing 2	GR2	2 = TOD
41 - Phase Omit 1	VO1	2 = TOD	91 - Inhibit Gap Reducing 3	GR3	2 = TOD
42 - Phase Omit 2	VO2	2 = TOD	92 - Inhibit Gap Reducing 4	GR4	2 = TOD
43 - Phase Omit 3	VO3	2 = TOD	93 - Inhibit Gap Reducing 5	GR5	2 = TOD
44 - Phase Omit 4	VO4	2 = TOD	94 - Inhibit Gap Reducing 6	GR6	2 = TOD
45 - Phase Omit 5	VO5	2 = TOD	95 - Inhibit Gap Reducing 7	GR7	2 = TOD
46 - Phase Omit 6	VO6	2 = TOD	96 - Inhibit Gap Reducing 8	GR8	2 = TOD
47 - Phase Omit 7	VO7	2 = TOD	97 - Lag 1	LG1	2 = TOD
48 - Phase Omit 8	VO8	2 = TOD	98 - Lag 3	LG3	2 = TOD
49 - Ped Omit 1	PO1	2 = TOD	99 - Lag 5	LG5	2 = TOD
50 - Ped Omit 2	PO2	2 = TOD	100 - Lag 7	LG8	2 = TOD

CIRCUIT OVERRIDES 101 - 199 (Next/2/4/4)

101 - Inhibit Overlap A	OLA	2 = TOD	151 - Coord Hold 7	HD7	2 = TOD
102 - Inhibit Overlap B	OLB	2 = TOD	152 - Coord Hold 8	HD8	2 = TOD
103 - Inhibit Overlap C	OLC	2 = TOD	153 - PE Priority Return B	PRB	2 = TOD
104 - Inhibit Overlap D	OLD	2 = TOD	154 - PE Priority Return C	PRC	2 = TOD
105 - Enable Schedule A Phone 1	AT1	2 = TOD	155 - PE Priority Return D	PRD	2 = TOD
106 - Enable Schedule A Phone 2	AT2	2 = TOD	156 - PE Priority Return E	PRE	2 = TOD
107 - Enable Schedule B Phone 1	BT1	2 = TOD	157 - Platoon Inbound	PPI	2 = TOD
108 - Enable Schedule B Phone 2	BT2	2 = TOD	158 - Platoon Outbound	PPO	2 = TOD
109 - Enable Schedule C Phone 1	CT1	2 = TOD	159 - Platoon Spl 2	PS2	2 = TOD
110 - Enable Schedule C Phone 2	CT2	2 = TOD	160 - Coord Walk Rest	CWR	2 = TOD
111 - Enable Volume to Call Phone 1	VT1	2 = TOD	161 - Dynamic Phase Length Short Inhibit 1	SL1	2 = TOD
112 - Enable Volume to Call Phone 1	VT2	2 = TOD	162 - Dynamic Phase Length Short Inhibit 2	SL2	2 = TOD
113 - Enable Volume Logging	EVL	1 = On	163 - Dynamic Phase Length Short Inhibit 3	SL3	2 = TOD
114 - Enable MOE Logging	EML	1 = On	164 - Dynamic Phase Length Short Inhibit 4	SL4	2 = TOD
115 - Detector Low Threshold Inhibit	DLI	2 = TOD	165 - Dynamic Phase Length Short Inhibit 5	SL5	2 = TOD
116 - Detector Continue Presence Inhibit	DPI	2 = TOD	166 - Dynamic Phase Length Short Inhibit 6	SL6	2 = TOD
117 - Inhibit Detector Based On Programming	IND	2 = TOD	167 - Dynamic Phase Length Short Inhibit 7	SL7	2 = TOD
118 - Inhibit Detector Delay	IDD	2 = TOD	168 - Dynamic Phase Length Short Inhibit 8	SL8	2 = TOD
119 - Inhibit Conditional Ped	ICP	2 = TOD	169 - Coord Late Left Turn 1	CT1	2 = TOD
120 - Inhibit Transit Priority	ITP	2 = TOD	170 - Coord Late Left Turn 3	CT3	2 = TOD
121 - Red Rest Ring 1	RR1	2 = TOD	171 - Coord Late Left Turn 5	CT5	2 = TOD
122 - Red Rest Ring 2	RR2	2 = TOD	172 - Coord Late Left Turn 7	CT7	2 = TOD
123 - Omit Red Clear Ring 1	OR1	2 = TOD	173 - Dynamic Phase Length Enable A	DPA	2 = TOD
124 - Omit Red Clear Ring 2	OR2	2 = TOD	174 - Dynamic Phase Length Enable B	DPB	2 = TOD
125 - Ped Recycle Ring 1	PR1	2 = TOD	175 - Dynamic Phase Length Enable C	DPC	2 = TOD
126 - Ped Recycle Ring 2	PR2	2 = TOD	176 - Dynamic Phase Length Enable D	DPD	2 = TOD
127 - Enable MOE Log to Call Phone 1	MT1	2 = TOD	177 - Proactive Plan Select Average	PSA	2 = TOD
128 - Enable MOE Log to Call Phone 2	MT2	2 = TOD	178 - Proactive Plan Select Inbound	PSI	2 = TOD
129 - Transit Inhibit Short Time 1	IS1	2 = TOD	179 - Proactive Plan Select Outbound	PSO	2 = TOD
130 - Transit Inhibit Short Time 2	IS2	2 = TOD	180 - Split Variant Inbound	SVI	2 = TOD
131 - Transit Inhibit Short Time 3	IS3	2 = TOD	181 - Split Variant Outbound	SVO	2 = TOD
132 - Transit Inhibit Short Time 4	IS4	2 = TOD	182 - Disable Coord Walk Rest Ring 1	WR1	2 = TOD
133 - Transit Inhibit Short Time 5	IS5	2 = TOD	183 - Disable Coord Walk Rest Ring 2	WR2	2 = TOD
134 - Transit Inhibit Short Time 6	IS6	2 = TOD	184 - Proactive Plan Select New Look	NLK	2 = TOD
135 - Transit Inhibit Short Time 7	IS7	2 = TOD	185 - Disable Red Clearance Extension	DRX	2 = TOD
136 - Transit Inhibit Short Time 8	IS8	2 = TOD	186 - Detector Plan Line 1	DL1	2 = TOD
137 - Enable Transit Priority Logging	ETL	2 = TOD	187 - Detector Plan Line 2	DL2	2 = TOD
138 - Disable Flashing Yellow Arrow 1	DF1	2 = TOD	188 - Disable LRT 1 Vertical Flashing Bar	DV1	2 = TOD
139 - Disable Flashing Yellow Arrow 3	DF3	2 = TOD	189 - Disable LRT 2 Vertical Flashing Bar	DV2	2 = TOD
140 - Disable Flashing Yellow Arrow 5	DF5	2 = TOD	190 - Disable LRT 3 Vertical Flashing Bar	DV3	2 = TOD
141 - Disable Flashing Yellow Arrow 7	DF7	2 = TOD	191 - Disable LRT 4 Vertical Flashing Bar	DV4	2 = TOD
142 - Disable Auto Max	DAM	2 = TOD	192 - Datakey Enable	DKE	1 = On
143 - Disable Repeated Phase Service	DRS	2 = TOD	193 - Dynamic Phase Reversal Enable 1	DR1	2 = TOD
144 - End of Main Street	EMS	2 = TOD	194 - Dynamic Phase Reversal Enable 3	DR3	2 = TOD
145 - Coord Hold 1	HD1	2 = TOD	195 - Dynamic Phase Reversal Enable 5	DR5	2 = TOD
146 - Coord Hold 2	HD2	2 = TOD	196 - Dynamic Phase Reversal Enable 7	DR7	2 = TOD
147 - Coord Hold 3	HD3	2 = TOD	197 - Enable Coordination Log	ECL	1 = On
148 - Coord Hold 4	HD4	2 = TOD	198 - Disable Gap For FYLTA	DGF	2 = TOD
149 - Coord Hold 5	HD5	2 = TOD	199 - Coordination Auto Walk	CAW	2 = TOD
150 - Coord Hold 6	HD6	2 = TOD			

PREEMPTION SEQUENCE 1 - 4 (Next/2/5)

Seq	Interval	Instruction	Phases Serviced	Interval Time	Hold On Input	Output On	Output Mode	
1	1	197	- 2 - - 5 - - -	0	On	- - - - -	0	Instructions - 0 = service phases defined in phases location 1-9 = use special intervals 1-9 10 = preempt sequence allows fylta 11 = preempt interval disables fylta 15 = alternate trap protection 90 = go to all red 91 = turn cvm off 92 = turn cvm on 93 = enable ped service and phases defined in phases location 94 = disable ped service 96 = enable coordination w/peds 97 = enable coordination w/o peds 98 = return with no calls 99 = return with ped calls and phases defined in phases location 100 = jump to step defined in time location and input has to be active for jump 101 = use time as resettable gap timer and service phases defined in phases location 196 = coordination sync w/peds 197 = coordination sync w/o peds 200 = lrt phase service w/o peds 201 = lrt phase service w/peds 202 = priority return-queue/delay 216 = lrt coordination sync w/peds 217 = lrt coordination sync w/o peds Phases Serviced - phases 1 - 8 Interval Time - 0 - 255 sec or interval 1 - 10 Hold on Input - X = on Outputs On - output 1 - 8 Output Modes - 0 = all steady on 1 = all flash together 2 = odd flashes WIG, even flashes WAG 3 = 1 - 4 steady on, 5 - 8 all flash together
	2	98	- - - - -	0	Off	- - - - -	0	
	3	0	- - - - -	0	Off	- - - - -	0	
	4	0	- - - - -	0	Off	- - - - -	0	
	5	0	- - - - -	0	Off	- - - - -	0	
	6	0	- - - - -	0	Off	- - - - -	0	
	7	0	- - - - -	0	Off	- - - - -	0	
	8	0	- - - - -	0	Off	- - - - -	0	
	9	0	- - - - -	0	Off	- - - - -	0	
	10	0	- - - - -	0	Off	- - - - -	0	
2	1	0	- - - - -	0	Off	- - - - -	0	
	2	0	- - - - -	0	Off	- - - - -	0	
	3	0	- - - - -	0	Off	- - - - -	0	
	4	0	- - - - -	0	Off	- - - - -	0	
	5	0	- - - - -	0	Off	- - - - -	0	
	6	0	- - - - -	0	Off	- - - - -	0	
	7	0	- - - - -	0	Off	- - - - -	0	
	8	0	- - - - -	0	Off	- - - - -	0	
	9	0	- - - - -	0	Off	- - - - -	0	
	10	0	- - - - -	0	Off	- - - - -	0	
3	1	197	- - - - - 6 - -	0	On	- - - - -	0	
	2	98	- - - - -	0	Off	- - - - -	0	
	3	0	- - - - -	0	Off	- - - - -	0	
	4	0	- - - - -	0	Off	- - - - -	0	
	5	0	- - - - -	0	Off	- - - - -	0	
	6	0	- - - - -	0	Off	- - - - -	0	
	7	0	- - - - -	0	Off	- - - - -	0	
	8	0	- - - - -	0	Off	- - - - -	0	
	9	0	- - - - -	0	Off	- - - - -	0	
	10	0	- - - - -	0	Off	- - - - -	0	
4	1	197	- - - - - 8	0	On	- - - - -	0	
	2	98	- - - - -	0	Off	- - - - -	0	
	3	0	- - - - -	0	Off	- - - - -	0	
	4	0	- - - - -	0	Off	- - - - -	0	
	5	0	- - - - -	0	Off	- - - - -	0	
	6	0	- - - - -	0	Off	- - - - -	0	
	7	0	- - - - -	0	Off	- - - - -	0	
	8	0	- - - - -	0	Off	- - - - -	0	
	9	0	- - - - -	0	Off	- - - - -	0	
	10	0	- - - - -	0	Off	- - - - -	0	

SEQUENCE TIMING (Next/2/5/0)										
Sequence		1	2	3	4	5	6	7	8	
Input Memory										X = on
Input Priority		6	0	6	6	0	0	0	0	0 = lowest, - 8 = highest
Entry (Transition) Parameters	Min Green	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec 0.0 would time the normal function time
	Walk	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	
	Ped Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Overlap Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec
	Overlap Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Delay to Preempt	0	0	0	0	0	0	0	0	0 - 255 sec
	Delay Ped Omit	0	0	0	0	0	0	0	0	
	Delay Phase Omit	0	0	0	0	0	0	0	0	
	Min Reservice	0	0	0	0	0	0	0	0	0 - 255 min
Overlap Inhibits		A								X = on
		B								
		C								
		D								
Exit Parameters	Exit to Coord Plan Offset by X	0	0	0	0	0	0	0	0	0 - 20
	Exit Coord Plan Time	0	0	0	0	0	0	0	0	0 - 60 min
	Exit to Max Plan	0	0	0	0	0	0	0	0	0 - 8
	Exit Free Time	0	0	0	0	0	0	0	0	0 - 60 min
	Override Time	0	0	0	0	0	0	0	0	
	Fail Time	0	0	0	0	0	0	0	0	
	Exit Mode Time	0	0	0	0	0	0	0	0	

PRIORITY RETURN AND SPECIAL INTERVALS (Next/2/5/0/6, Next/2/5/9)														
Phase / Overlap		1	2	3	4	5	6	7	8	A	B	C	D	
Priority Return	Enable	Off	0 = disabled; 1 = enabled; 2 = enabled and skip preempt phase on exit											
	A (max)	0	0	0	0	0	0	0	0	0 - 100% of currently used max				
	B (max)	0	0	0	0	0	0	0	0					
	C (max)	0	0	0	0	0	0	0	0					
	D (max)	0	0	0	0	0	0	0	0					
	E (max)	0	0	0	0	0	0	0	0					
	Ped Clear	0	0	0	0	0	0	0	0	0	0 - 100% of currently used ped clearance			
Queue Delay Recovery		0	0	0	0	0	0	0	0	0 - 255 sec				
Special Intervals	1	0	0	0	0	0	0	0	0	0	0	0	0	0 = Dark 1 = green don't walk 2 = green walk 3 = green flashing don't walk 4 = yellow 5 = red 6 = flashing yellow WIG 7 = flashing yellow WAG 8 = flashing red WIG 9 = flashing red WAG 10 = walk only 11=flashing don't walk only
	2	0	0	0	0	0	0	0	0	0	0	0	0	
	3	0	0	0	0	0	0	0	0	0	0	0	0	
	4	0	0	0	0	0	0	0	0	0	0	0	0	
	5	0	0	0	0	0	0	0	0	0	0	0	0	
	6	0	0	0	0	0	0	0	0	0	0	0	0	
	7	0	0	0	0	0	0	0	0	0	0	0	0	
	8	0	0	0	0	0	0	0	0	0	0	0	0	
	9	0	0	0	0	0	0	0	0	0	0	0	0	

LIGHT RAIL TRAIN (Next/2/5/0/7)					
Light Rail Train	1	2	3	4	
Associated Preempt	0	0	0	0	0 = none, preempt 1 - 8
Time to Green	0	0	0	0	0 - 255 sec
Horizontal Bar Flash Time	0.0	0.0	0.0	0.0	
Vertical Bar Flash Time	0.0	0.0	0.0	0.0	0.0 - 25.5 sec
Min Duration	0	0	0	0	0 - 255 sec

Miscellaneous Data

TRANSIT PRIORITY (Next/2/7)

	1	2	3	4	5	6	7	8	
Phases	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	Phases 1 - 8 (max of 2 compatible phases)
PE Enable (6.25Hz TP call on PE)	X	X	X	X					X = 6.25 Hz signal will activate TP
Priority	0	0	0	0	0	0	0	0	0 - 8, 8 = highest
Memory									X = on
Delay Time	0	0	0	0	0	0	0	0	0 - 255 sec
Minimum Reservice Time (per input)	0	0	0	0	0	0	0	0	0 - 255 min
Override Time	0	0	0	0	0	0	0	0	0 - 255 sec
Bus Extend	0	0	0	0	0	0	0	0	0 - 255 min
Minimum Reservice Time (all inputs)	0	0 - 255 min							
Free Operation Mode	0	0 = use shortest of max 1 or 2, 1 - 8 = use max time of group 1 - 8, 9 = use time of day circuit							

TRANSIT PRIORITY ALTERNATE FORCE OFF PLANS (Next/2/7/6)

Current Coord Plan	1	2	3	4	5	6	7	8	0 = none 17 - 32 = coord plan 17 - 32
Alternate TP Force Off Plan	0	0	0	0	0	0	0	0	
Current Coord Plan	9	10	11	12	13	14	15	16	
Alternate TP Force Off Plan	0	0	0	0	0	0	0	0	

GROUP TIMING (Next/2/7/5)

	Phase -->	1	2	3	4	5	6	7	8	
Group 1	Max Times	0	0	0	0	0	0	0	0	0 - 255 sec 0 would time the normal function time
	Walk Times	0	0	0	0	0	0	0	0	
Group 2	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 3	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 4	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 5	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 6	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 7	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 8	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	

TRUCK PRIORITY (Next/2/7/9)

Truck Priority -->	1	2	3	4	
Associated Transit Priority	0	0	0	0	0 = none 1 - 8 = transit priority 1 - 8
Leading Detector	0	0	0	0	0 = none, 1 - 32 = detector 1 - 32
Trailing Detector	0	0	0	0	
Stop Bar Distance	0	0	0	0	0 - 999 feet
Trap Distance	0.0	0.0	0.0	0.0	0.0 - 99.9 feet
Minimum Speed	0	0	0	0	0 - 100 mph
Minimum Length	0	0	0	0	0 - 255 feet
Downhill Grade (%)	0	0	0	0	0 - 20%
Uphill Grade (%)	0	0	0	0	
Undersized Vehicle					X = Enabled

170 INPUTS (Next/2/8/1)

C1-39	101 - Veh Detector 9	C1-67	22 - Ped Detector 2
C1-40	113 - Veh Detector 19	C1-68	26 - Ped Detector 6
C1-41	106 - Veh Detector 14	C1-69	24 - Ped Detector 4
C1-42	118 - Veh Detector 24	C1-70	28 - Ped Detector 8
C1-43	102 - Veh Detector 10	C1-71	151 - Preempt In 1
C1-44	114 - Veh Detector 20	C1-72	152 - Preempt In 2
C1-45	107 - Veh Detector 15	C1-73	153 - Preempt In 3
C1-46	161 - Veh Detector 25	C1-74	154 - Preempt In 4
C1-47	105 - Veh Detector 13	C1-75	254 - Pin Not Used
C1-48	117 - Veh Detector 23	C1-76	104 - Veh Detector 12
C1-49	112 - Veh Detector 18	C1-77	116 - Veh Detector 22
C1-50	164 - Veh Detector 28	C1-78	111 - Veh Detector 17
C1-51	199 - LRT Ped Inhibit	C1-79	163 - Veh Detector 27
C1-52	155 - Preempt In 5	C1-80	82 - Interval Advance
C1-53	85 - Manual Control Enable	C1-81	137 - Conflict Monitor Status/Flash
C1-54	254 - Pin Not Used	C1-82	62 - Stop Timing Ring 1
C1-55	15 - Veh Detector 5	C11-15	254 - Pin Not Used
C1-56	11 - Veh Detector 1	C11-16	254 - Pin Not Used
C1-57	17 - Veh Detector 7	C11-17	254 - Pin Not Used
C1-58	13 - Veh Detector 3	C11-18	254 - Pin Not Used
C1-59	16 - Veh Detector 6	C11-19	254 - Pin Not Used
C1-60	12 - Veh Detector 2	C11-20	254 - Pin Not Used
C1-61	18 - Veh Detector 8	C11-21	254 - Pin Not Used
C1-62	14 - Veh Detector 4	C11-22	254 - Pin Not Used
C11-10	254 - Pin Not Used	C11-23	254 - Pin Not Used
C11-11	254 - Pin Not Used	C11-24	254 - Pin Not Used
C11-12	254 - Pin Not Used	C11-25	254 - Pin Not Used
C11-13	254 - Pin Not Used	C11-26	254 - Pin Not Used
C1-63	103 - Veh Detector 11	C11-27	254 - Pin Not Used
C1-64	115 - Veh Detector 21	C11-28	254 - Pin Not Used
C1-65	108 - Veh Detector 16	C11-29	254 - Pin Not Used
C1-66	162 - Veh Detector 26	C11-30	254 - Pin Not Used

INPUTS AND OUTPUTS OPTIONS (Next/2/8/3)

Connector Type	C1/C11	Change I/O	0 = Disabled
0 = C1/C11; 1 = MS-A/B/C/D; 2 = TS2 Port 1; 3 = ITS Cabinet		X = On (After a download without a power on - off cycle)	

170 OUTPUTS (Next/2/8/2)

C1-2	44 - Don't Walk, Ph 4	C1-35	131 - TOD Output 1
C1-3	64 - Walk, Ph 4	C1-36	132 - TOD Output 2
C1-4	14 - Red, Ph 4	C1-37	133 - TOD Output 3
C1-5	24 - Yellow, Ph 4	C1-38	134 - TOD Output 4
C1-6	34 - Green, Ph 4	C1-100	53 - Ped Clear, Ph 3
C1-7	13 - Red, Ph 3	C1-101	51 - Ped Clear, Ph 1
C1-8	23 - Yellow, Ph 3	C1-102	187 - Soft Flash
C1-9	33 - Green, Ph 3	C1-103	147 - Watchdog
C1-10	42 - Don't Walk, Ph 2	C1-83	43 - Don't Walk, Ph 3
C1-11	62 - Walk, Ph 2	C1-84	63 - Walk, Ph 3
C1-12	12 - Red, Ph 2	C1-85	116 - Overlap D, Red
C1-13	22 - Yellow, Ph 2	C1-86	115 - Overlap D, Yellow
C1-15	32 - Green, Ph 2	C1-87	114 - Overlap D, Green
C1-16	11 - Red, Ph 1	C1-88	113 - Overlap C, Red
C1-17	21 - Yellow, Ph 1	C1-89	112 - Overlap C, Yellow
C1-18	31 - Green, Ph 1	C1-90	111 - Overlap C, Green
C1-19	48 - Don't Walk, Ph 8	C1-91	41 - Don't Walk, Ph 1
C1-20	68 - Walk, Ph 8	C1-93	61 - Walk, Ph 1
C1-21	18 - Red, Ph 8	C1-94	106 - Overlap B, Red
C1-22	28 - Yellow, Ph 8	C1-95	105 - Overlap B, Yellow
C1-23	38 - Green, Ph 8	C1-96	104 - Overlap B, Green
C1-24	17 - Red, Ph 7	C1-97	103 - Overlap A, Red
C1-25	27 - Yellow, Ph 7	C1-98	102 - Overlap A, Yellow
C1-26	217 - FYLTA, 5	C1-99	101 - Overlap A, Green
C1-27	46 - Don't Walk, Ph 6	C11-1	254 - Pin Not Used
C1-28	66 - Walk, Ph 6	C11-2	254 - Pin Not Used
C1-29	16 - Red, Ph 6	C11-3	254 - Pin Not Used
C1-30	26 - Yellow, Ph 6	C11-4	254 - Pin Not Used
C1-31	36 - Green, Ph 6	C11-5	254 - Pin Not Used
C1-32	15 - Red, Ph 5	C11-6	254 - Pin Not Used
C1-33	223 - FYLTA CLR, 5	C11-7	254 - Pin Not Used
C1-34	35 - Green, Ph 5	C11-8	254 - Pin Not Used

INTERNAL LOGIC 1 - 96 (Next/2/9)

Step	Inst.	Comment	Step	Inst.	Comment
1	201		49	0	
2	106		50	0	
3	165		51	0	
4	201		52	0	
5	107		53	0	
6	165		54	0	
7	0		55	0	
8	0		56	0	
9	0		57	0	
10	0		58	0	
11	0		59	0	
12	0		60	0	
13	0		61	0	
14	0		62	0	
15	0		63	0	
16	0		64	0	
17	0		65	0	
18	0		66	0	
19	0		67	0	
20	0		68	0	
21	0		69	0	
22	0		70	0	
23	0		71	0	
24	0		72	0	
25	0		73	0	
26	0		74	0	
27	0		75	0	
28	0		76	0	
29	0		77	0	
30	0		78	0	
31	0		79	0	
32	0		80	0	
33	0		81	0	
34	0		82	0	
35	0		83	0	
36	0		84	0	
37	0		85	0	
38	0		86	0	
39	0		87	0	
40	0		88	0	
41	0		89	0	
42	0		90	0	
43	0		91	0	
44	0		92	0	
45	0		93	0	
46	0		94	0	
47	0		95	0	
48	0		96	0	

CONTROLLER ID

Manufacturer ID	NORTHWEST SIGNAL
Model ID	Voyage-0 v05.03.01
Protocol Revision ID	AB3418E V1

HCM 2010 TWSC
1: Tannler Drive & North Access

7/7/2015

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	0	0	51	115	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	55	125	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	180	125	125	0	-	0
Stage 1	125	-	-	-	-	-
Stage 2	55	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	810	926	1462	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	810	926	1462	-	-	-
Mov Cap-2 Maneuver	810	-	-	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	968	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1462	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 2010 TWSC
2: 13th Street & Blankenship Road

7/7/2015

Intersection												
Int Delay, s/veh	1.4											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Vol, veh/h	0	0	2	48	0	7	3	298	1	0	239	24
Conflicting Peds, #/hr	3	0	1	1	0	3	4	0	7	7	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	2	0	0	0	3	0	0	5	4
Mvmt Flow	0	0	2	52	0	8	3	320	1	0	257	26
Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	607	616	331	604	604	280	286	0	0	325	0	0
Stage 1	330	330	-	273	273	-	-	-	-	-	-	-
Stage 2	277	286	-	331	331	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	411	409	715	410	415	764	1288	-	-	1246	-	-
Stage 1	687	649	-	733	688	-	-	-	-	-	-	-
Stage 2	734	679	-	682	649	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	403	406	709	404	412	758	1280	-	-	1239	-	-
Mov Cap-2 Maneuver	403	406	-	404	412	-	-	-	-	-	-	-
Stage 1	683	645	-	729	686	-	-	-	-	-	-	-
Stage 2	722	677	-	674	645	-	-	-	-	-	-	-
Approach	NB			SB			SE			NW		
HCM Control Delay, s	10.1			14.7			0.1			0		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1				
Capacity (veh/h)	709	1239	-	-	1280	-	-	430				
HCM Lane V/C Ratio	0.003	-	-	-	0.003	-	-	0.138				
HCM Control Delay (s)	10.1	0	-	-	7.8	0	-	14.7				
HCM Lane LOS	B	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.5				













Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	4	321	23	30	231	27	29	2	22	4	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	3	6	19	0	0	5	0	0	0
Mvmt Flow	4	357	26	33	257	30	32	2	24	4	0	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	287	0	0	382	0	0	717	731	369	730	729	272
Stage 1	-	-	-	-	-	-	378	378	-	338	338	-
Stage 2	-	-	-	-	-	-	339	353	-	392	391	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	1287	-	-	1171	-	-	347	351	670	340	352	772
Stage 1	-	-	-	-	-	-	648	619	-	681	644	-
Stage 2	-	-	-	-	-	-	680	634	-	637	611	-
Platoon blocked, %			-	-		-						
Mov Cap-1 Maneuver	1287	-	-	1171	-	-	338	340	670	318	341	772
Mov Cap-2 Maneuver	-	-	-	-	-	-	338	340	-	318	341	-
Stage 1	-	-	-	-	-	-	646	617	-	679	626	-
Stage 2	-	-	-	-	-	-	659	616	-	610	609	-
Approach	EB			WB			NE			SW		
HCM Control Delay, s	0.1			0.9			14.8			14.2		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NELn1	EBL	EBT	EBR	WBL	WBT	WBRSWLn1					
Capacity (veh/h)	426	1287	-	-	1171	-	-					
HCM Lane V/C Ratio	0.138	0.003	-	-	0.028	-	-					
HCM Control Delay (s)	14.8	7.8	-	-	8.2	-	-					
HCM Lane LOS	B	A	-	-	A	-	-					
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-					

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	22	322	6	58	260	26	1	3	38	86	4	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	25	3	0	7	6	0	7	0	0	0	0	0
Mvmt Flow	23	343	6	62	277	28	1	3	40	91	4	27
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	349	0	0	822	821	346	808	810	290
Stage 1	-	-	-	-	-	-	393	393	-	414	414	-
Stage 2	-	-	-	-	-	-	429	428	-	394	396	-
Critical Hdwy	4.35	-	-	4.17	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.425	-	-	2.263	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1137	-	-	1183	-	-	287	312	702	302	316	754
Stage 1	-	-	-	-	-	-	622	609	-	620	597	-
Stage 2	-	-	-	-	-	-	594	588	-	635	607	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1137	-	-	1183	-	-	259	290	702	267	293	754
Mov Cap-2 Maneuver	-	-	-	-	-	-	259	290	-	267	293	-
Stage 1	-	-	-	-	-	-	609	597	-	607	566	-
Stage 2	-	-	-	-	-	-	539	557	-	583	595	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			1.4			11.1			23.8		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	282	702	1137	-	-	1183	-	-	312			
HCM Lane V/C Ratio	0.015	0.058	0.021	-	-	0.052	-	-	0.392			
HCM Control Delay (s)	18	10.4	8.2	-	-	8.2	-	-	23.8			
HCM Lane LOS	C	B	A	-	-	A	-	-	C			
HCM 95th %tile Q(veh)	0	0.2	0.1	-	-	0.2	-	-	1.8			

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















7/7/2015

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	34	410	415	56	288	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	6.0	5.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1792	1583	1770	1827	1687	1404
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1792	1583	1770	1827	1687	1404
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	39	466	472	64	327	258
RTOR Reduction (vph)	0	112	0	0	0	50
Lane Group Flow (vph)	39	354	472	64	327	208
Heavy Vehicles (%)	6%	2%	2%	4%	7%	15%
Turn Type	NA	custom	Prot	NA	Prot	custom
Protected Phases	4	4 5 7	3	8	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	6.5	40.7	24.7	36.2	42.3	72.5
Effective Green, g (s)	6.5	40.7	24.7	36.2	42.3	72.5
Actuated g/C Ratio	0.07	0.45	0.27	0.40	0.47	0.81
Clearance Time (s)	5.5		5.5	6.0		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	129	715	485	734	792	1131
v/s Ratio Prot	0.02	c0.22	c0.27	0.04	c0.19	0.15
v/s Ratio Perm						
v/c Ratio	0.30	0.49	0.97	0.09	0.41	0.18
Uniform Delay, d1	39.6	17.4	32.3	16.7	15.7	2.0
Progression Factor	1.00	1.00	1.00	1.00	0.27	0.00
Incremental Delay, d2	0.8	0.3	33.7	0.0	0.4	0.0
Delay (s)	40.4	17.7	66.0	16.7	4.7	0.0
Level of Service	D	B	E	B	A	A
Approach Delay (s)	19.5			60.1	2.6	
Approach LOS	B			E	A	
Intersection Summary						
HCM 2000 Control Delay			26.8		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	27.5
Intersection Capacity Utilization			57.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp



















7/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	99	0	170	149	355	0	0	497	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frt					1.00	0.85	1.00	1.00			0.94	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1687	1468	1805	1712			3335	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1687	1468	1805	1712			3335	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.00
Adj. Flow (vph)	0	0	0	111	0	191	167	399	0	0	558	326
RTOR Reduction (vph)	0	0	0	0	0	177	0	0	0	0	92	0
Lane Group Flow (vph)	0	0	0	0	111	14	167	399	0	0	792	0
Heavy Vehicles (%)	0%	0%	0%	7%	0%	10%	0%	11%	0%	0%	3%	1%
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				7	7	7	1	5			2 3 4	
Permitted Phases												
Actuated Green, G (s)					6.8	6.8	10.8	21.9			50.4	
Effective Green, g (s)					6.8	6.8	10.8	21.9			50.4	
Actuated g/C Ratio					0.08	0.08	0.12	0.24			0.56	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					127	110	216	416			1867	
v/s Ratio Prot					c0.07	0.01	0.09	c0.23			c0.24	
v/s Ratio Perm												
v/c Ratio					0.87	0.13	0.77	0.96			0.42	
Uniform Delay, d1					41.2	38.8	38.4	33.6			11.4	
Progression Factor					1.00	1.00	1.00	1.00			0.70	
Incremental Delay, d2					43.4	0.3	14.9	34.0			0.1	
Delay (s)					84.5	39.2	53.3	67.6			8.0	
Level of Service					F	D	D	E			A	
Approach Delay (s)		0.0			55.8			63.4			8.0	
Approach LOS		A			E			E			A	
Intersection Summary												
HCM 2000 Control Delay			34.2									
HCM 2000 Level of Service											C	
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			90.0								27.5	
Intersection Capacity Utilization			51.7%								A	
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 10th Street & I-205 Northbound Ramp

7/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	168	0	123	0	0	0	0	328	189	273	308	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lane Util. Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1719	1583					1810	1599	1787	1827	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1719	1583					1810	1599	1787	1827	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	198	0	145	0	0	0	0	386	222	321	362	0
RTOR Reduction (vph)	0	0	121	0	0	0	0	0	150	0	0	0
Lane Group Flow (vph)	0	198	24	0	0	0	0	386	72	321	362	0
Heavy Vehicles (%)	5%	0%	2%	0%	0%	0%	0%	5%	1%	1%	4%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8						6			
Actuated Green, G (s)		14.8	14.8					27.1	27.1	33.1	65.2	
Effective Green, g (s)		14.8	14.8					27.1	27.1	33.1	65.2	
Actuated g/C Ratio		0.16	0.16					0.30	0.30	0.37	0.72	
Clearance Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Vehicle Extension (s)		2.3	2.3					6.9	6.9	2.3	6.9	
Lane Grp Cap (vph)		282	260					545	481	657	1323	
v/s Ratio Prot								c0.21		c0.18	0.20	
v/s Ratio Perm		0.12	0.02						0.05			
v/c Ratio		0.70	0.09					0.71	0.15	0.49	0.27	
Uniform Delay, d1		35.5	31.9					27.9	23.0	21.9	4.3	
Progression Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2		6.8	0.1					6.9	0.5	2.6	0.5	
Delay (s)		42.3	32.0					34.9	23.5	24.5	4.8	
Level of Service		D	C					C	C	C	A	
Approach Delay (s)		38.0			0.0			30.7			14.1	
Approach LOS		D			A			C			B	
Intersection Summary												
HCM 2000 Control Delay			25.3		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				15.0			
Intersection Capacity Utilization			72.0%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 TWSC
8: 10th Street & 8th Avenue/8th Court

7/7/2015

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	6	6	54	8	160	19	337	89	144	221	73
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	200	-	-	100	-	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	4	0	0	0	0	4	0	6	1	4	9	1
Mvmt Flow	29	7	7	62	9	184	22	387	102	166	254	84
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1114	1160	296	1116	1151	439	338	0	0	490	0	0
Stage 1	627	627	-	482	482	-	-	-	-	-	-	-
Stage 2	487	533	-	634	669	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.5	6.2	7.1	6.5	6.24	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4	3.3	3.5	4	3.336	2.2	-	-	2.236	-	-
Pot Cap-1 Maneuver	184	197	748	187	200	614	1232	-	-	1063	-	-
Stage 1	468	479	-	569	557	-	-	-	-	-	-	-
Stage 2	558	528	-	471	459	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	107	162	748	155	165	614	1232	-	-	1063	-	-
Mov Cap-2 Maneuver	107	162	-	155	165	-	-	-	-	-	-	-
Stage 1	456	404	-	555	543	-	-	-	-	-	-	-
Stage 2	375	515	-	387	387	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	40.4			22.5			0.3			3		
HCM LOS	E			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1232	-	-	107	266	156	614	1063	-	-		
HCM Lane V/C Ratio	0.018	-	-	0.269	0.052	0.457	0.3	0.156	-	-		
HCM Control Delay (s)	8	0	-	50.6	19.3	46.1	13.4	9	-	-		
HCM Lane LOS	A	A	-	F	C	E	B	A	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	1	0.2	2.1	1.3	0.6	-	-		

Intersection									
Intersection Delay, s/veh	24.5								
Intersection LOS	C								
Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Vol, veh/h	0	280	156	0	284	163	0	92	192
Peak Hour Factor	0.92	0.85	0.85	0.92	0.85	0.85	0.92	0.85	0.85
Heavy Vehicles, %	2	5	6	2	4	5	2	3	8
Mvmt Flow	0	329	184	0	334	192	0	108	226
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	18.2	37.4	13.8
HCM LOS	C	E	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	64%	0%	0%
Vol Right, %	0%	0%	36%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	280	156	447	92	192
LT Vol	280	0	0	92	0
Through Vol	0	156	284	0	0
RT Vol	0	0	163	0	192
Lane Flow Rate	329	184	526	108	226
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.638	0.331	0.876	0.234	0.417
Departure Headway (Hd)	6.976	6.483	5.996	7.794	6.653
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	517	552	605	459	538
Service Time	4.746	4.253	4.055	5.568	4.426
HCM Lane V/C Ratio	0.636	0.333	0.869	0.235	0.42
HCM Control Delay	21.3	12.5	37.4	13	14.2
HCM Lane LOS	C	B	E	B	B
HCM 95th-tile Q	4.4	1.4	10.1	0.9	2

HCM 2010 TWSC
1: Tannler Drive & North Access

7/7/2015

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	0	0	55	127	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	60	138	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	198	138	138	0	-	0
Stage 1	138	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	791	910	1446	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	791	910	1446	-	-	-
Mov Cap-2 Maneuver	791	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1446	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	0	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	-	-	

HCM 2010 TWSC
2: 13th Street & Blankenship Road

7/7/2015

Intersection												
Int Delay, s/veh	1.4											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Vol, veh/h	0	0	2	50	0	7	3	310	1	0	239	24
Conflicting Peds, #/hr	3	0	1	1	0	3	4	0	7	7	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	2	0	0	0	3	0	0	5	4
Mvmt Flow	0	0	2	54	0	8	3	333	1	0	257	26
Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	620	629	344	617	617	280	286	0	0	337	0	0
Stage 1	343	343	-	273	273	-	-	-	-	-	-	-
Stage 2	277	286	-	344	344	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	403	402	703	402	408	764	1288	-	-	1234	-	-
Stage 1	676	641	-	733	688	-	-	-	-	-	-	-
Stage 2	734	679	-	671	640	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	395	399	697	397	405	758	1280	-	-	1227	-	-
Mov Cap-2 Maneuver	395	399	-	397	405	-	-	-	-	-	-	-
Stage 1	672	637	-	729	686	-	-	-	-	-	-	-
Stage 2	722	677	-	663	636	-	-	-	-	-	-	-
Approach	NB			SB			SE			NW		
HCM Control Delay, s	10.2			15			0.1			0		
HCM LOS	B			C								
Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1				
Capacity (veh/h)	697	1227	-	-	1280	-	-	422				
HCM Lane V/C Ratio	0.003	-	-	-	0.003	-	-	0.145				
HCM Control Delay (s)	10.2	0	-	-	7.8	0	-	15				
HCM Lane LOS	B	A	-	-	A	A	-	C				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.5				

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	334	24	31	240	28	30	2	23	4	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	3	6	19	0	0	5	0	0	0
Mvmt Flow	4	371	27	34	267	31	33	2	26	4	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	298	0	0	398	0	0	745	760	384	758	758	282
Stage 1	-	-	-	-	-	-	393	393	-	351	351	-
Stage 2	-	-	-	-	-	-	352	367	-	407	407	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	1275	-	-	1155	-	-	333	338	657	326	339	762
Stage 1	-	-	-	-	-	-	636	609	-	670	636	-
Stage 2	-	-	-	-	-	-	669	626	-	625	601	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1275	-	-	1155	-	-	324	327	657	304	328	762
Mov Cap-2 Maneuver	-	-	-	-	-	-	324	327	-	304	328	-
Stage 1	-	-	-	-	-	-	634	607	-	668	617	-
Stage 2	-	-	-	-	-	-	647	608	-	597	599	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.9	15.3	14.6
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	411	1275	-	-	1155	-	-	380
HCM Lane V/C Ratio	0.149	0.003	-	-	0.03	-	-	0.018
HCM Control Delay (s)	15.3	7.8	-	-	8.2	-	-	14.6
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

Intersection

Int Delay, s/veh 5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	335	6	60	271	29	1	3	40	96	4	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	25	3	0	7	6	0	7	0	0	0	0	0
Mvmt Flow	24	356	6	64	288	31	1	3	43	102	4	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	319	0	0	363	0	0	856	856	360	841	843	304
Stage 1	-	-	-	-	-	-	409	409	-	431	431	-
Stage 2	-	-	-	-	-	-	447	447	-	410	412	-
Critical Hdwy	4.35	-	-	4.17	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.425	-	-	2.263	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1122	-	-	1168	-	-	272	297	689	287	303	740
Stage 1	-	-	-	-	-	-	610	600	-	607	586	-
Stage 2	-	-	-	-	-	-	581	577	-	623	598	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1122	-	-	1168	-	-	244	275	689	252	280	740
Mov Cap-2 Maneuver	-	-	-	-	-	-	244	275	-	252	280	-
Stage 1	-	-	-	-	-	-	597	587	-	594	554	-
Stage 2	-	-	-	-	-	-	525	545	-	569	585	-

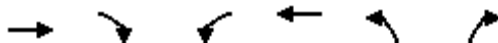
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.4	11.3	27.2
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	267	689	1122	-	-	1168	-	-	293
HCM Lane V/C Ratio	0.016	0.062	0.022	-	-	0.055	-	-	0.457
HCM Control Delay (s)	18.7	10.6	8.3	-	-	8.3	-	-	27.2
HCM Lane LOS	C	B	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0	0.2	0.1	-	-	0.2	-	-	2.3

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive

7/7/2015



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	35	434	464	58	302	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	6.0	5.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1792	1583	1770	1827	1687	1404
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1792	1583	1770	1827	1687	1404
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	40	493	527	66	343	281
RTOR Reduction (vph)	0	123	0	0	0	55
Lane Group Flow (vph)	40	370	527	66	343	226
Heavy Vehicles (%)	6%	2%	2%	4%	7%	15%
Turn Type	NA	custom	Prot	NA	Prot	custom
Protected Phases	4	4 5 7	3	8	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	6.5	39.3	24.9	36.4	42.1	72.5
Effective Green, g (s)	6.5	39.3	24.9	36.4	42.1	72.5
Actuated g/C Ratio	0.07	0.44	0.28	0.40	0.47	0.81
Clearance Time (s)	5.5		5.5	6.0		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	129	691	489	738	789	1131
v/s Ratio Prot	0.02	c0.23	c0.30	0.04	c0.20	0.16
v/s Ratio Perm						
v/c Ratio	0.31	0.53	1.08	0.09	0.43	0.20
Uniform Delay, d1	39.6	18.6	32.5	16.6	16.0	2.0
Progression Factor	1.00	1.00	1.00	1.00	0.28	0.00
Incremental Delay, d2	0.8	0.5	63.2	0.0	0.4	0.0
Delay (s)	40.4	19.2	95.8	16.6	4.8	0.0
Level of Service	D	B	F	B	A	A
Approach Delay (s)	20.8			86.9	2.7	
Approach LOS	C			F	A	

Intersection Summary



















HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp



















7/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	103	0	184	155	375	0	0	543	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frt					1.00	0.85	1.00	1.00			0.95	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1687	1468	1805	1712			3336	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1687	1468	1805	1712			3336	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.00
Adj. Flow (vph)	0	0	0	116	0	207	174	421	0	0	610	351
RTOR Reduction (vph)	0	0	0	0	0	192	0	0	0	0	89	0
Lane Group Flow (vph)	0	0	0	0	116	15	174	421	0	0	872	0
Heavy Vehicles (%)	0%	0%	0%	7%	0%	10%	0%	11%	0%	0%	3%	1%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					6.5	6.5	11.1	20.8			50.4	
Effective Green, g (s)					6.5	6.5	11.1	20.8			50.4	
Actuated g/C Ratio					0.07	0.07	0.12	0.23			0.56	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					121	106	222	395			1868	
v/s Ratio Prot					c0.07		0.10	c0.25			c0.26	
v/s Ratio Perm						0.01						
v/c Ratio					0.96	0.14	0.78	1.07			0.47	
Uniform Delay, d1					41.6	39.1	38.3	34.6			11.8	
Progression Factor					1.00	1.00	1.00	1.00			0.67	
Incremental Delay, d2					67.9	0.4	15.6	63.9			0.1	
Delay (s)					109.6	39.5	53.9	98.5			7.9	
Level of Service					F	D	D	F			A	
Approach Delay (s)		0.0			64.7			85.4			7.9	
Approach LOS		A			E			F			A	
Intersection Summary												
HCM 2000 Control Delay			42.2									HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			90.0									Sum of lost time (s) 27.5
Intersection Capacity Utilization			54.3%									ICU Level of Service A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 10th Street & I-205 Northbound Ramp

7/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	179	0	128	0	0	0	0	343	197	304	326	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lane Util. Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1719	1583					1810	1599	1787	1827	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1719	1583					1810	1599	1787	1827	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	211	0	151	0	0	0	0	404	232	358	384	0
RTOR Reduction (vph)	0	0	125	0	0	0	0	0	148	0	0	0
Lane Group Flow (vph)	0	211	26	0	0	0	0	404	84	358	384	0
Heavy Vehicles (%)	5%	0%	2%	0%	0%	0%	0%	5%	1%	1%	4%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8						6			
Actuated Green, G (s)		15.3	15.3					27.6	27.6	32.1	64.7	
Effective Green, g (s)		15.3	15.3					27.6	27.6	32.1	64.7	
Actuated g/C Ratio		0.17	0.17					0.31	0.31	0.36	0.72	
Clearance Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Vehicle Extension (s)		2.3	2.3					6.9	6.9	2.3	6.9	
Lane Grp Cap (vph)		292	269					555	490	637	1313	
v/s Ratio Prot								c0.22		c0.20	0.21	
v/s Ratio Perm		0.12	0.02						0.05			
v/c Ratio		0.72	0.10					0.73	0.17	0.56	0.29	
Uniform Delay, d1		35.3	31.5					27.8	22.8	23.3	4.5	
Progression Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2		7.7	0.1					7.3	0.6	3.6	0.6	
Delay (s)		43.1	31.6					35.2	23.4	26.9	5.1	
Level of Service		D	C					D	C	C	A	
Approach Delay (s)		38.3			0.0			30.9			15.6	
Approach LOS		D			A			C			B	
Intersection Summary												
HCM 2000 Control Delay		25.9										
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		90.0										
Intersection Capacity Utilization		74.9%										
Analysis Period (min)		15										
c Critical Lane Group												

Intersection												
Int Delay, s/veh	7.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	6	6	56	8	166	20	353	93	150	236	76
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	200	-	-	100	-	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	4	0	0	0	0	4	0	6	1	4	9	1
Mvmt Flow	29	7	7	64	9	191	23	406	107	172	271	87

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1170	1219	315	1172	1208	459	359	0	0	513	0	0
Stage 1	660	660	-	505	505	-	-	-	-	-	-	-
Stage 2	510	559	-	667	703	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.5	6.2	7.1	6.5	6.24	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4	3.3	3.5	4	3.336	2.2	-	-	2.236	-	-
Pot Cap-1 Maneuver	168	182	730	171	185	598	1211	-	-	1042	-	-
Stage 1	449	463	-	553	544	-	-	-	-	-	-	-
Stage 2	542	514	-	451	443	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	93	148	730	140	150	598	1211	-	-	1042	-	-
Mov Cap-2 Maneuver	93	148	-	140	150	-	-	-	-	-	-	-
Stage 1	437	387	-	538	529	-	-	-	-	-	-	-
Stage 2	353	500	-	366	370	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.3	25.4	0.3	3
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1211	-	-	93	246	141	598	1042	-	-
HCM Lane V/C Ratio	0.019	-	-	0.309	0.056	0.522	0.319	0.165	-	-
HCM Control Delay (s)	8	0	-	60.1	20.5	55.5	13.8	9.1	-	-
HCM Lane LOS	A	A	-	F	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.2	2.5	1.4	0.6	-	-

Intersection									
Intersection Delay, s/veh	28.7								
Intersection LOS	D								
Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Vol, veh/h	0	292	162	0	295	171	0	99	203
Peak Hour Factor	0.92	0.85	0.85	0.92	0.85	0.85	0.92	0.85	0.85
Heavy Vehicles, %	2	5	6	2	4	5	2	3	8
Mvmt Flow	0	344	191	0	347	201	0	116	239
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	19.9	46.6	14.5
HCM LOS	C	E	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	63%	0%	0%
Vol Right, %	0%	0%	37%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	292	162	466	99	203
LT Vol	292	0	0	99	0
Through Vol	0	162	295	0	0
RT Vol	0	0	171	0	203
Lane Flow Rate	344	191	548	116	239
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.679	0.351	0.93	0.256	0.449
Departure Headway (Hd)	7.118	6.624	6.109	7.914	6.771
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	505	539	592	452	530
Service Time	4.897	4.404	4.175	5.694	4.549
HCM Lane V/C Ratio	0.681	0.354	0.926	0.257	0.451
HCM Control Delay	23.8	13	46.6	13.4	15
HCM Lane LOS	C	B	E	B	B
HCM 95th-tile Q	5.1	1.6	11.9	1	2.3

HCM 2010 TWSC
1: Tannler Drive & North Access

7/7/2015

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	49	19	55	127	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	53	21	60	138	2

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	240	139	140 0
Stage 1	139	-	- -
Stage 2	101	-	- -
Critical Hdwy	6.42	6.22	4.12 -
Critical Hdwy Stg 1	5.42	-	- -
Critical Hdwy Stg 2	5.42	-	- -
Follow-up Hdwy	3.518	3.318	2.218 -
Pot Cap-1 Maneuver	748	909	1443 -
Stage 1	888	-	- -
Stage 2	923	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	737	909	1443 -
Mov Cap-2 Maneuver	737	-	- -
Stage 1	888	-	- -
Stage 2	909	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	9.3	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1443	-	890	-	-
HCM Lane V/C Ratio	0.014	-	0.066	-	-
HCM Control Delay (s)	7.5	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

HCM 2010 TWSC
2: 13th Street & Blankenship Road

7/7/2015

Intersection															
Int Delay, s/veh	1.4														
Movement	NBL	NBT	NBR		SBL	SBT	SBR		SEL	SET	SER		NWL	NWT	NWR
Vol, veh/h	0	0	2		50	0	7		3	312	1		0	254	25
Conflicting Peds, #/hr	3	0	1		1	0	3		4	0	7		7	0	4
Sign Control	Stop	Stop	Stop		Stop	Stop	Stop		Free	Free	Free		Free	Free	Free
RT Channelized	-	-	None		-	-	None		-	-	None		-	-	None
Storage Length	-	-	-		-	-	-		-	-	-		-	-	-
Veh in Median Storage, #	-	0	-		-	0	-		-	0	-		-	0	-
Grade, %	-	0	-		-	0	-		-	0	-		-	0	-
Peak Hour Factor	93	93	93		93	93	93		93	93	93		93	93	93
Heavy Vehicles, %	0	0	0		2	0	0		0	3	0		0	5	4
Mvmt Flow	0	0	2		54	0	8		3	335	1		0	273	27
Major/Minor	Minor1			Minor2			Major1			Major2					
Conflicting Flow All	638	648	346		637	636	297		303	0	0		340	0	0
Stage 1	345	345	-		290	290	-		-	-	-		-	-	-
Stage 2	293	303	-		347	346	-		-	-	-		-	-	-
Critical Hdwy	7.1	6.5	6.2		7.12	6.5	6.2		4.1	-	-		4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-		6.12	5.5	-		-	-	-		-	-	-
Critical Hdwy Stg 2	6.1	5.5	-		6.12	5.5	-		-	-	-		-	-	-
Follow-up Hdwy	3.5	4	3.3		3.518	4	3.3		2.2	-	-		2.2	-	-
Pot Cap-1 Maneuver	392	392	702		390	398	747		1269	-	-		1230	-	-
Stage 1	675	640	-		718	676	-		-	-	-		-	-	-
Stage 2	719	667	-		669	639	-		-	-	-		-	-	-
Platoon blocked, %										-	-			-	-
Mov Cap-1 Maneuver	384	389	696		385	395	741		1262	-	-		1223	-	-
Mov Cap-2 Maneuver	384	389	-		385	395	-		-	-	-		-	-	-
Stage 1	671	636	-		714	674	-		-	-	-		-	-	-
Stage 2	708	665	-		661	635	-		-	-	-		-	-	-
Approach	NB			SB			SE			NW					
HCM Control Delay, s	10.2			15.3			0.1			0					
HCM LOS	B			C											
Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1							
Capacity (veh/h)	696	1223	-	-	1262	-	-	409							
HCM Lane V/C Ratio	0.003	-	-	-	0.003	-	-	0.15							
HCM Control Delay (s)	10.2	0	-	-	7.9	0	-	15.3							
HCM Lane LOS	B	A	-	-	A	A	-	C							
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.5							

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	335	24	31	243	46	30	4	23	49	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	3	6	19	0	0	5	0	0	0
Mvmt Flow	6	372	27	34	270	51	33	4	26	54	6	4
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	321	0	0	399	0	0	766	787	386	776	774	296
Stage 1	-	-	-	-	-	-	397	397	-	364	364	-
Stage 2	-	-	-	-	-	-	369	390	-	412	410	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	1250	-	-	1154	-	-	322	326	655	317	332	748
Stage 1	-	-	-	-	-	-	633	607	-	659	627	-
Stage 2	-	-	-	-	-	-	655	611	-	621	599	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1250	-	-	1154	-	-	308	315	655	294	321	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	315	-	294	321	-
Stage 1	-	-	-	-	-	-	630	604	-	656	609	-
Stage 2	-	-	-	-	-	-	626	593	-	590	596	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.8			15.9			19.7		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	393	1250	-	-	1154	-	-	309				
HCM Lane V/C Ratio	0.161	0.004	-	-	0.03	-	-	0.209				
HCM Control Delay (s)	15.9	7.9	-	-	8.2	-	-	19.7				
HCM Lane LOS	C	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.8				

Intersection

Int Delay, s/veh 10.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	380	6	60	289	48	1	3	40	142	4	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	25	3	0	7	6	0	7	0	0	0	0	0
Mvmt Flow	24	404	6	64	307	51	1	3	43	151	4	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	359	0	0	411	0	0	934	942	407	919	921	333
Stage 1	-	-	-	-	-	-	456	456	-	461	461	-
Stage 2	-	-	-	-	-	-	478	486	-	458	460	-
Critical Hdwy	4.35	-	-	4.17	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.425	-	-	2.263	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1083	-	-	1121	-	-	241	265	648	254	273	713
Stage 1	-	-	-	-	-	-	575	572	-	584	569	-
Stage 2	-	-	-	-	-	-	559	554	-	587	569	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1083	-	-	1121	-	-	214	244	648	221	252	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	214	244	-	221	252	-
Stage 1	-	-	-	-	-	-	562	559	-	571	537	-
Stage 2	-	-	-	-	-	-	500	522	-	533	556	-













Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.3	11.8	52.1
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	236	648	1083	-	-	1121	-	-	250
HCM Lane V/C Ratio	0.018	0.066	0.023	-	-	0.057	-	-	0.745
HCM Control Delay (s)	20.5	10.9	8.4	-	-	8.4	-	-	52.1
HCM Lane LOS	C	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.1	0.2	0.1	-	-	0.2	-	-	5.3

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive

7/7/2015

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	45	515	464	62	335	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	6.0	5.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1792	1583	1770	1827	1687	1404
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1792	1583	1770	1827	1687	1404
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	51	585	527	70	381	281
RTOR Reduction (vph)	0	99	0	0	0	55
Lane Group Flow (vph)	51	486	527	70	381	226
Heavy Vehicles (%)	6%	2%	2%	4%	7%	15%
Turn Type	NA	custom	Prot	NA	Prot	custom
Protected Phases	4	4 5 7	3	8	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	8.4	46.3	28.9	42.3	46.2	80.6
Effective Green, g (s)	8.4	46.3	28.9	42.3	46.2	80.6
Actuated g/C Ratio	0.08	0.46	0.29	0.42	0.46	0.81
Clearance Time (s)	5.5		5.5	6.0		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	150	732	511	772	779	1131
v/s Ratio Prot	0.03	c0.31	c0.30	0.04	c0.23	0.16
v/s Ratio Perm						
v/c Ratio	0.34	0.66	1.03	0.09	0.49	0.20
Uniform Delay, d1	43.2	20.8	35.5	17.3	18.7	2.2
Progression Factor	1.00	1.00	1.00	1.00	0.30	0.00
Incremental Delay, d2	0.8	1.9	48.1	0.0	0.5	0.0
Delay (s)	44.0	22.7	83.6	17.3	6.2	0.0
Level of Service	D	C	F	B	A	A
Approach Delay (s)	24.4			75.9	3.6	
Approach LOS	C			E	A	
Intersection Summary						
HCM 2000 Control Delay			33.3		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.89			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	27.5
Intersection Capacity Utilization			66.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp



















7/7/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↰	↰	↰			↰↱	
Volume (vph)	0	0	0	103	0	202	155	390	0	0	595	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frt					1.00	0.85	1.00	1.00			0.95	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1687	1468	1805	1712			3338	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1687	1468	1805	1712			3338	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.00
Adj. Flow (vph)	0	0	0	116	0	227	174	438	0	0	669	378
RTOR Reduction (vph)	0	0	0	0	0	210	0	0	0	0	77	0
Lane Group Flow (vph)	0	0	0	0	116	17	174	438	0	0	970	0
Heavy Vehicles (%)	0%	0%	0%	7%	0%	10%	0%	11%	0%	0%	3%	1%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					7.5	7.5	12.2	24.9			58.3	
Effective Green, g (s)					7.5	7.5	12.2	24.9			58.3	
Actuated g/C Ratio					0.08	0.08	0.12	0.25			0.58	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					126	110	220	426			1946	
v/s Ratio Prot					c0.07		0.10	c0.26			c0.29	
v/s Ratio Perm						0.01						
v/c Ratio					0.92	0.15	0.79	1.03			0.50	
Uniform Delay, d1					46.0	43.3	42.7	37.5			12.3	
Progression Factor					1.00	1.00	1.00	1.00			0.78	
Incremental Delay, d2					55.9	0.4	16.7	51.0			0.1	
Delay (s)					101.9	43.7	59.3	88.6			9.6	
Level of Service					F	D	E	F			A	
Approach Delay (s)		0.0			63.3			80.2			9.6	
Approach LOS		A			E			F			A	
Intersection Summary												
HCM 2000 Control Delay			40.4		HCM 2000 Level of Service						D	
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)						27.5	
Intersection Capacity Utilization			56.6%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 10th Street & I-205 Northbound Ramp

7/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	190	0	128	0	0	0	0	347	197	346	336	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lane Util. Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1719	1583					1810	1599	1787	1827	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1719	1583					1810	1599	1787	1827	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	224	0	151	0	0	0	0	408	232	407	395	0
RTOR Reduction (vph)	0	0	124	0	0	0	0	0	147	0	0	0
Lane Group Flow (vph)	0	224	27	0	0	0	0	408	85	407	395	0
Heavy Vehicles (%)	5%	0%	2%	0%	0%	0%	0%	5%	1%	1%	4%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8						6			
Actuated Green, G (s)		15.8	15.8					27.7	27.7	31.5	64.2	
Effective Green, g (s)		15.8	15.8					27.7	27.7	31.5	64.2	
Actuated g/C Ratio		0.18	0.18					0.31	0.31	0.35	0.71	
Clearance Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Vehicle Extension (s)		2.3	2.3					6.9	6.9	2.3	6.9	
Lane Grp Cap (vph)		301	277					557	492	625	1303	
v/s Ratio Prot								c0.23		c0.23	0.22	
v/s Ratio Perm		0.13	0.02						0.05			
v/c Ratio		0.74	0.10					0.73	0.17	0.65	0.30	
Uniform Delay, d1		35.2	31.1					27.8	22.8	24.6	4.7	
Progression Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2		8.8	0.1					7.4	0.6	5.2	0.6	
Delay (s)		44.0	31.2					35.3	23.4	29.8	5.3	
Level of Service		D	C					D	C	C	A	
Approach Delay (s)		38.9			0.0			31.0			17.8	
Approach LOS		D			A			C			B	
Intersection Summary												
HCM 2000 Control Delay			26.8									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			90.0									Sum of lost time (s) 15.0
Intersection Capacity Utilization			77.4%									ICU Level of Service D
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	7.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	26	6	6	56	8	166	20	357	93	150	246	76
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	200	-	-	100	-	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	4	0	0	0	0	4	0	6	1	4	9	1
Mvmt Flow	30	7	7	64	9	191	23	410	107	172	283	87

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1185	1234	326	1188	1225	464	370	0	0	517	0	0
Stage 1	671	671	-	510	510	-	-	-	-	-	-	-
Stage 2	514	563	-	678	715	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.5	6.2	7.1	6.5	6.24	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4	3.3	3.5	4	3.336	2.2	-	-	2.236	-	-
Pot Cap-1 Maneuver	164	178	720	167	180	594	1200	-	-	1039	-	-
Stage 1	443	458	-	550	541	-	-	-	-	-	-	-
Stage 2	540	512	-	445	438	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	91	145	720	137	146	594	1200	-	-	1039	-	-
Mov Cap-2 Maneuver	91	145	-	137	146	-	-	-	-	-	-	-
Stage 1	431	382	-	535	526	-	-	-	-	-	-	-
Stage 2	350	498	-	361	365	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	49.5	26	0.3	2.9
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1200	-	-	91	241	138	594	1039	-	-
HCM Lane V/C Ratio	0.019	-	-	0.328	0.057	0.533	0.321	0.166	-	-
HCM Control Delay (s)	8.1	0	-	62.8	20.8	57.5	13.9	9.2	-	-
HCM Lane LOS	A	A	-	F	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	0.2	2.6	1.4	0.6	-	-

Intersection									
Intersection Delay, s/veh	29.9								
Intersection LOS	D								
Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Vol, veh/h	0	294	162	0	295	173	0	104	208
Peak Hour Factor	0.92	0.85	0.85	0.92	0.85	0.85	0.92	0.85	0.85
Heavy Vehicles, %	2	5	6	2	4	5	2	3	8
Mvmt Flow	0	346	191	0	347	204	0	122	245
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	20.5	49	14.8
HCM LOS	C	E	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	63%	0%	0%
Vol Right, %	0%	0%	37%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	294	162	468	104	208
LT Vol	294	0	0	104	0
Through Vol	0	162	295	0	0
RT Vol	0	0	173	0	208
Lane Flow Rate	346	191	551	122	245
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.689	0.353	0.941	0.27	0.462
Departure Headway (Hd)	7.169	6.676	6.151	7.936	6.793
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	502	536	589	450	529
Service Time	4.956	4.462	4.222	5.719	4.574
HCM Lane V/C Ratio	0.689	0.356	0.935	0.271	0.463
HCM Control Delay	24.5	13.1	49	13.7	15.3
HCM Lane LOS	C	B	E	B	C
HCM 95th-tile Q	5.2	1.6	12.3	1.1	2.4

HCM 2010 TWSC
1: Tannler Drive & North Access

7/7/2015

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	0	0	51	115	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	55	125	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	180	125	125	0	-	0
Stage 1	125	-	-	-	-	-
Stage 2	55	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	810	926	1462	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	810	926	1462	-	-	-
Mov Cap-2 Maneuver	810	-	-	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	968	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1462	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 2010 TWSC
2: 13th Street & Blankenship Road

7/7/2015

Intersection												
Int Delay, s/veh	1											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Vol, veh/h	0	0	0	37	0	5	9	399	0	1	307	45
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	25	25	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	92
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	0	0
Mvmt Flow	0	0	0	39	0	5	9	420	0	1	323	49
Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	795	817	447	793	793	375	374	0	0	422	0	0
Stage 1	441	441	-	352	352	-	-	-	-	-	-	-
Stage 2	354	376	-	441	441	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	308	313	616	309	323	676	1196	-	-	1148	-	-
Stage 1	599	580	-	669	635	-	-	-	-	-	-	-
Stage 2	667	620	-	599	580	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	296	309	602	300	318	661	1171	-	-	1124	-	-
Mov Cap-2 Maneuver	296	309	-	300	318	-	-	-	-	-	-	-
Stage 1	592	573	-	661	633	-	-	-	-	-	-	-
Stage 2	647	618	-	581	573	-	-	-	-	-	-	-
Approach	NB			SB			SE			NW		
HCM Control Delay, s	0			18			0.2			0		
HCM LOS	A			C								
Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1				
Capacity (veh/h)	-	1124	-	-	1171	-	-	321				
HCM Lane V/C Ratio	-	0.001	-	-	0.008	-	-	0.138				
HCM Control Delay (s)	0	8.2	0	-	8.1	0	-	18				
HCM Lane LOS	A	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.5				













Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	382	55	49	299	4	54	0	49	27	3	3
Conflicting Peds, #/hr	1	0	7	7	0	1	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	3	4	2	1	0	0	0	2	0	0	0
Mvmt Flow	1	406	59	52	318	4	57	0	52	29	3	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	324	0	0	467	0	0	870	869	445	892	895	329
Stage 1	-	-	-	-	-	-	440	440	-	426	426	-
Stage 2	-	-	-	-	-	-	430	429	-	466	469	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.5	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1247	-	-	1094	-	-	274	292	613	265	282	717
Stage 1	-	-	-	-	-	-	600	581	-	610	589	-
Stage 2	-	-	-	-	-	-	607	587	-	581	564	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1240	-	-	1088	-	-	258	277	608	232	267	712
Mov Cap-2 Maneuver	-	-	-	-	-	-	258	277	-	232	267	-
Stage 1	-	-	-	-	-	-	599	580	-	608	560	-
Stage 2	-	-	-	-	-	-	569	558	-	528	563	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			1.2			19.6			21.7		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	355	1240	-	-	1088	-	-	250				
HCM Lane V/C Ratio	0.309	0.001	-	-	0.048	-	-	0.14				
HCM Control Delay (s)	19.6	7.9	-	-	8.5	-	-	21.7				
HCM Lane LOS	C	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	1.3	0	-	-	0.2	-	-	0.5				

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	52	392	14	105	307	39	20	10	104	40	7	29
Conflicting Peds, #/hr	0	0	2	7	0	1	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	2	1	0	0	10	3	3	0	0
Mvmt Flow	55	413	15	111	323	41	21	11	109	42	7	31
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	366	0	0	429	0	0	1117	1118	429	1104	1106	348
Stage 1	-	-	-	-	-	-	531	531	-	567	567	-
Stage 2	-	-	-	-	-	-	586	587	-	537	539	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.6	6.23	7.13	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4.09	3.327	3.527	4	3.3
Pot Cap-1 Maneuver	1204	-	-	1130	-	-	186	200	624	188	212	700
Stage 1	-	-	-	-	-	-	536	513	-	507	510	-
Stage 2	-	-	-	-	-	-	500	484	-	526	525	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1202	-	-	1123	-	-	153	171	619	131	182	698
Mov Cap-2 Maneuver	-	-	-	-	-	-	153	171	-	131	182	-
Stage 1	-	-	-	-	-	-	511	489	-	483	459	-
Stage 2	-	-	-	-	-	-	423	435	-	402	500	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			2			16.8			35.2		
HCM LOS							C			E		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	159	619	1202	-	-	1123	-	-	197			
HCM Lane V/C Ratio	0.199	0.177	0.046	-	-	0.098	-	-	0.406			
HCM Control Delay (s)	33.2	12.1	8.1	-	-	8.6	-	-	35.2			
HCM Lane LOS	D	B	A	-	-	A	-	-	E			
HCM 95th %tile Q(veh)	0.7	0.6	0.1	-	-	0.3	-	-	1.8			

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	106	430	298	83	372	266
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	6.0	5.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1881	1583	1770	1900	1787	1599
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1881	1583	1770	1900	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	120	489	339	94	423	302
RTOR Reduction (vph)	0	136	0	0	0	43
Lane Group Flow (vph)	120	353	339	94	423	259
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	1%	2%	2%	0%	1%	1%
Turn Type	NA	custom	Prot	NA	Prot	custom
Protected Phases	4	4 5 7	3	8	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	11.6	63.2	25.5	42.1	61.7	92.7
Effective Green, g (s)	11.6	63.2	25.5	42.1	61.7	92.7
Actuated g/C Ratio	0.10	0.55	0.22	0.37	0.54	0.80
Clearance Time (s)	5.5		5.5	6.0		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	189	867	391	693	956	1285
v/s Ratio Prot	c0.06	c0.22	c0.19	0.05	c0.24	0.16
v/s Ratio Perm						
v/c Ratio	0.63	0.41	0.87	0.14	0.44	0.20
Uniform Delay, d1	49.8	15.1	43.3	24.4	16.3	2.6
Progression Factor	1.00	1.00	1.00	1.00	0.38	0.00
Incremental Delay, d2	5.6	0.2	17.6	0.1	0.5	0.0
Delay (s)	55.4	15.3	60.9	24.5	6.7	0.0
Level of Service	E	B	E	C	A	A
Approach Delay (s)	23.2			53.0	3.9	
Approach LOS	C			D	A	
Intersection Summary						
HCM 2000 Control Delay			22.6		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.65			
Actuated Cycle Length (s)			115.3		Sum of lost time (s)	27.5
Intersection Capacity Utilization			53.4%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp



















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	194	4	300	96	333	0	0	538	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frpb, ped/bikes					1.00	1.00	1.00	1.00			0.98	
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	
Frt					1.00	0.85	1.00	1.00			0.96	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1752	1583	1703	1863			3290	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1752	1583	1703	1863			3290	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	216	4	333	107	370	0	0	598	207
RTOR Reduction (vph)	0	0	0	0	0	281	0	0	0	0	29	0
Lane Group Flow (vph)	0	0	0	0	220	52	107	370	0	0	776	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	0%	0%	0%	3%	25%	2%	6%	2%	0%	0%	3%	5%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					18.0	18.0	10.0	28.1			65.3	
Effective Green, g (s)					18.0	18.0	10.0	28.1			65.3	
Actuated g/C Ratio					0.16	0.16	0.09	0.24			0.57	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					273	247	147	454			1863	
v/s Ratio Prot					c0.13		0.06	c0.20			c0.24	
v/s Ratio Perm						0.03						
v/c Ratio					0.81	0.21	0.73	0.81			0.42	
Uniform Delay, d1					47.0	42.4	51.3	41.1			14.2	
Progression Factor					1.00	1.00	1.00	1.00			0.57	
Incremental Delay, d2					15.2	0.2	14.9	12.2			0.1	
Delay (s)					62.2	42.7	66.2	53.3			8.1	
Level of Service					E	D	E	D			A	
Approach Delay (s)		0.0			50.4			56.2			8.1	
Approach LOS		A			D			E			A	
Intersection Summary												
HCM 2000 Control Delay			33.4									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			115.3								27.5	
Intersection Capacity Utilization			51.2%									ICU Level of Service A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 10th Street & I-205 Northbound Ramp

7/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	1	68	0	0	0	0	332	318	244	491	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lane Util. Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1775	1553					1863	1553	1736	1863	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1775	1553					1863	1553	1736	1863	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	108	1	77	0	0	0	0	377	361	277	558	0
RTOR Reduction (vph)	0	0	68	0	0	0	0	0	213	0	0	0
Lane Group Flow (vph)	0	109	9	0	0	0	0	377	148	277	558	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	2%	0%	4%	0%	0%	0%	0%	2%	4%	4%	2%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8						6			
Actuated Green, G (s)		7.2	7.2					25.2	25.2	15.2	45.4	
Effective Green, g (s)		7.2	7.2					25.2	25.2	15.2	45.4	
Actuated g/C Ratio		0.12	0.12					0.40	0.40	0.24	0.73	
Clearance Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Vehicle Extension (s)		2.3	2.3					6.9	6.9	2.3	6.9	
Lane Grp Cap (vph)		204	178					749	625	421	1351	
v/s Ratio Prot								c0.20		c0.16	0.30	
v/s Ratio Perm		0.06	0.01						0.10			
v/c Ratio		0.53	0.05					0.50	0.24	0.66	0.41	
Uniform Delay, d1		26.1	24.7					14.0	12.4	21.4	3.4	
Progression Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.8	0.1					1.8	0.7	3.1	0.7	
Delay (s)		27.9	24.7					15.9	13.0	24.5	4.1	
Level of Service		C	C					B	B	C	A	
Approach Delay (s)		26.6			0.0			14.5			10.8	
Approach LOS		C			A			B			B	
Intersection Summary												
HCM 2000 Control Delay			14.0		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			62.6		Sum of lost time (s)				15.0			
Intersection Capacity Utilization			72.8%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	37.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	118	8	38	38	7	131	30	404	68	109	349	95
Conflicting Peds, #/hr	1	0	6	6	0	1	9	0	0	0	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	200	-	-	100	-	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	1	0	3	0	0	2	0	4	2	2	3	1
Mvmt Flow	134	9	43	43	8	149	34	459	77	124	397	108

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1280	1315	466	1302	1330	513	511	0	0	542	0	0
Stage 1	704	704	-	572	572	-	-	-	-	-	-	-
Stage 2	576	611	-	730	758	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.5	6.23	7.1	6.5	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.11	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4	3.327	3.5	4	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	143	159	595	139	156	561	1065	-	-	1027	-	-
Stage 1	429	443	-	509	508	-	-	-	-	-	-	-
Stage 2	504	487	-	417	418	-	-	-	-	-	-	-
Platoon blocked, %							-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 86	132	588	106	129	554	1057	-	-	1019	-	-
Mov Cap-2 Maneuver	~ 86	132	-	106	129	-	-	-	-	-	-	-
Stage 1	407	387	-	483	482	-	-	-	-	-	-	-
Stage 2	343	462	-	329	365	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	281.8	26.8	0.5	1.8
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1057	-	-	86	367	109	554	1019	-	-
HCM Lane V/C Ratio	0.032	-	-	1.559	0.142	0.469	0.269	0.122	-	-
HCM Control Delay (s)	8.5	0	-	385.3	16.4	64.3	13.9	9	-	-
HCM Lane LOS	A	A	-	F	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	10.7	0.5	2.1	1.1	0.4	-	-

Notes										
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon										

Intersection									
Intersection Delay, s/veh	27								
Intersection LOS	D								
Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Vol, veh/h	0	373	452	0	161	133	0	162	265
Peak Hour Factor	0.92	0.94	0.94	0.92	0.94	0.94	0.92	0.94	0.94
Heavy Vehicles, %	2	4	3	2	2	2	2	4	2
Mvmt Flow	0	397	481	0	171	141	0	172	282
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	35.8	17.8	16.3
HCM LOS	E	C	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	55%	0%	0%
Vol Right, %	0%	0%	45%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	373	452	294	162	265
LT Vol	373	0	0	162	0
Through Vol	0	452	161	0	0
RT Vol	0	0	133	0	265
Lane Flow Rate	397	481	313	172	282
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.782	0.877	0.566	0.381	0.525
Departure Headway (Hd)	7.096	6.569	6.514	7.969	6.708
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	508	548	554	452	536
Service Time	4.86	4.333	4.567	5.73	4.468
HCM Lane V/C Ratio	0.781	0.878	0.565	0.381	0.526
HCM Control Delay	31	39.8	17.8	15.6	16.7
HCM Lane LOS	D	E	C	C	C
HCM 95th-tile Q	7.1	9.8	3.5	1.8	3

HCM 2010 TWSC
1: Tannler Drive & North Access

7/7/2015

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	0	0	113	83	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	123	90	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	213	90	0
Stage 1	90	-	-
Stage 2	123	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	775	968	1505
Stage 1	934	-	-
Stage 2	902	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	775	968	1505
Mov Cap-2 Maneuver	775	-	-
Stage 1	934	-	-
Stage 2	902	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1505	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 2010 TWSC
2: 13th Street & Blankenship Road

7/7/2015

Intersection															
Int Delay, s/veh	1.1														
Movement	NBL	NBT	NBR		SBL	SBT	SBR		SEL	SET	SER		NWL	NWT	NWR
Vol, veh/h	0	0	0		38	0	5		9	415	0		1	319	47
Conflicting Peds, #/hr	2	0	2		2	0	2		2	0	25		25	0	2
Sign Control	Stop	Stop	Stop		Stop	Stop	Stop		Free	Free	Free		Free	Free	Free
RT Channelized	-	-	None		-	-	None		-	-	None		-	-	None
Storage Length	-	-	-		-	-	-		-	-	-		-	-	-
Veh in Median Storage, #	-	0	-		-	0	-		-	0	-		-	0	-
Grade, %	-	0	-		-	0	-		-	0	-		-	0	-
Peak Hour Factor	95	95	95		95	95	95		95	95	95		95	95	92
Heavy Vehicles, %	0	0	0		0	0	0		0	3	0		0	0	0
Mvmt Flow	0	0	0		40	0	5		9	437	0		1	336	51
Major/Minor	Minor1			Minor2			Major1			Major2					
Conflicting Flow All	826	849	464		823	823	388		389	0	0		439	0	0
Stage 1	458	458	-		365	365	-		-	-	-		-	-	-
Stage 2	368	391	-		458	458	-		-	-	-		-	-	-
Critical Hdwy	7.1	6.5	6.2		7.1	6.5	6.2		4.1	-	-		4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-		6.1	5.5	-		-	-	-		-	-	-
Critical Hdwy Stg 2	6.1	5.5	-		6.1	5.5	-		-	-	-		-	-	-
Follow-up Hdwy	3.5	4	3.3		3.5	4	3.3		2.2	-	-		2.2	-	-
Pot Cap-1 Maneuver	293	300	602		295	311	665		1181	-	-		1132	-	-
Stage 1	587	570	-		658	627	-		-	-	-		-	-	-
Stage 2	656	611	-		587	570	-		-	-	-		-	-	-
Platoon blocked, %										-	-			-	-
Mov Cap-1 Maneuver	282	296	588		286	307	650		1156	-	-		1108	-	-
Mov Cap-2 Maneuver	282	296	-		286	307	-		-	-	-		-	-	-
Stage 1	580	563	-		650	625	-		-	-	-		-	-	-
Stage 2	636	609	-		569	563	-		-	-	-		-	-	-
Approach	NB			SB			SE			NW					
HCM Control Delay, s	0			18.8			0.2			0					
HCM LOS	A			C											
Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1							
Capacity (veh/h)	-	1108	-	-	1156	-	-	306							
HCM Lane V/C Ratio	-	0.001	-	-	0.008	-	-	0.148							
HCM Control Delay (s)	0	8.3	0	-	8.1	0	-	18.8							
HCM Lane LOS	A	A	A	-	A	A	-	C							
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.5							

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	397	57	51	311	4	56	0	51	28	3	3
Conflicting Peds, #/hr	1	0	7	7	0	1	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	3	4	2	1	0	0	0	2	0	0	0
Mvmt Flow	1	422	61	54	331	4	60	0	54	30	3	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	337	0	0	485	0	0	904	903	462	927	930	342
Stage 1	-	-	-	-	-	-	457	457	-	443	443	-
Stage 2	-	-	-	-	-	-	447	446	-	484	487	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.5	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1234	-	-	1078	-	-	260	279	600	251	269	705
Stage 1	-	-	-	-	-	-	587	571	-	598	579	-
Stage 2	-	-	-	-	-	-	595	577	-	568	554	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1227	-	-	1072	-	-	244	264	596	218	254	700
Mov Cap-2 Maneuver	-	-	-	-	-	-	244	264	-	218	254	-
Stage 1	-	-	-	-	-	-	586	570	-	597	549	-
Stage 2	-	-	-	-	-	-	556	547	-	513	553	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			1.2			20.8			23.1		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	340	1227	-	-	1072	-	-	235				
HCM Lane V/C Ratio	0.335	0.001	-	-	0.051	-	-	0.154				
HCM Control Delay (s)	20.8	7.9	-	-	8.5	-	-	23.1				
HCM Lane LOS	C	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	1.4	0	-	-	0.2	-	-	0.5				

Intersection												
Int Delay, s/veh	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	54	408	15	109	319	49	21	10	108	46	7	30
Conflicting Peds, #/hr	0	0	2	7	0	1	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	2	1	0	0	10	3	3	0	0
Mvmt Flow	57	429	16	115	336	52	22	11	114	48	7	32
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	389	0	0	447	0	0	1166	1172	446	1151	1154	366
Stage 1	-	-	-	-	-	-	553	553	-	593	593	-
Stage 2	-	-	-	-	-	-	613	619	-	558	561	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.6	6.23	7.13	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4.09	3.327	3.527	4	3.3
Pot Cap-1 Maneuver	1181	-	-	1113	-	-	172	186	610	174	199	684
Stage 1	-	-	-	-	-	-	521	502	-	490	497	-
Stage 2	-	-	-	-	-	-	483	468	-	512	513	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1179	-	-	1107	-	-	140	158	605	118	169	682
Mov Cap-2 Maneuver	-	-	-	-	-	-	140	158	-	118	169	-
Stage 1	-	-	-	-	-	-	495	477	-	466	445	-
Stage 2	-	-	-	-	-	-	405	419	-	385	487	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			2			17.8			44.5		
HCM LOS							C			E		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	145	605	1179	-	-	1107	-	-	175			
HCM Lane V/C Ratio	0.225	0.188	0.048	-	-	0.104	-	-	0.499			
HCM Control Delay (s)	36.9	12.3	8.2	-	-	8.6	-	-	44.5			
HCM Lane LOS	E	B	A	-	-	A	-	-	E			
HCM 95th %tile Q(veh)	0.8	0.7	0.2	-	-	0.3	-	-	2.4			

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















7/7/2015

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	110	451	331	86	372	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	6.0	5.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1881	1583	1770	1900	1787	1599
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1881	1583	1770	1900	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	125	512	376	98	423	353
RTOR Reduction (vph)	0	144	0	0	0	31
Lane Group Flow (vph)	125	368	376	98	423	322
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	1%	2%	2%	0%	1%	1%
Turn Type	NA	custom	Prot	NA	Prot	custom
Protected Phases	4	4 5 7	3	8	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	10.5	63.0	27.3	42.8	62.7	95.5
Effective Green, g (s)	10.5	63.0	27.3	42.8	62.7	95.5
Actuated g/C Ratio	0.09	0.54	0.23	0.37	0.54	0.82
Clearance Time (s)	5.5		5.5	6.0		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	168	852	413	695	957	1305
v/s Ratio Prot	c0.07	c0.23	c0.21	0.05	c0.24	0.20
v/s Ratio Perm						
v/c Ratio	0.74	0.43	0.91	0.14	0.44	0.25
Uniform Delay, d1	51.9	16.2	43.7	24.8	16.5	2.5
Progression Factor	1.00	1.00	1.00	1.00	0.37	0.01
Incremental Delay, d2	15.1	0.2	23.7	0.1	0.4	0.0
Delay (s)	67.0	16.4	67.3	24.9	6.6	0.1
Level of Service	E	B	E	C	A	A
Approach Delay (s)	26.4			58.6	3.6	
Approach LOS	C			E	A	
Intersection Summary						
HCM 2000 Control Delay			25.1		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			117.0		Sum of lost time (s)	27.5
Intersection Capacity Utilization			55.4%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp



















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	202	4	333	100	365	0	0	577	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frpb, ped/bikes					1.00	1.00	1.00	1.00			0.98	
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	
Frt					1.00	0.85	1.00	1.00			0.96	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1752	1583	1703	1863			3288	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1752	1583	1703	1863			3288	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	224	4	370	111	406	0	0	641	224
RTOR Reduction (vph)	0	0	0	0	0	315	0	0	0	0	29	0
Lane Group Flow (vph)	0	0	0	0	228	55	111	406	0	0	836	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	0%	0%	0%	3%	25%	2%	6%	2%	0%	0%	3%	5%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					17.5	17.5	10.4	29.5			67.1	
Effective Green, g (s)					17.5	17.5	10.4	29.5			67.1	
Actuated g/C Ratio					0.15	0.15	0.09	0.25			0.57	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					262	236	151	469			1885	
v/s Ratio Prot					c0.13		0.07	c0.22			c0.25	
v/s Ratio Perm						0.03						
v/c Ratio					0.87	0.23	0.74	0.87			0.44	
Uniform Delay, d1					48.6	43.8	52.0	41.9			14.3	
Progression Factor					1.00	1.00	1.00	1.00			0.58	
Incremental Delay, d2					25.1	0.3	15.5	16.7			0.1	
Delay (s)					73.7	44.1	67.4	58.5			8.4	
Level of Service					E	D	E	E			A	
Approach Delay (s)		0.0			55.4			60.4			8.4	
Approach LOS		A			E			E			A	
Intersection Summary												
HCM 2000 Control Delay			36.2									HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			117.0								27.5	
Intersection Capacity Utilization			53.5%									ICU Level of Service A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 10th Street & I-205 Northbound Ramp

7/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	112	1	71	0	0	0	0	351	331	267	515	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lane Util. Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1775	1553					1863	1553	1736	1863	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1775	1553					1863	1553	1736	1863	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	127	1	81	0	0	0	0	399	376	303	585	0
RTOR Reduction (vph)	0	0	71	0	0	0	0	0	211	0	0	0
Lane Group Flow (vph)	0	128	10	0	0	0	0	399	165	303	585	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	2%	0%	4%	0%	0%	0%	0%	2%	4%	4%	2%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8						6			
Actuated Green, G (s)		8.0	8.0					26.3	26.3	16.7	48.0	
Effective Green, g (s)		8.0	8.0					26.3	26.3	16.7	48.0	
Actuated g/C Ratio		0.12	0.12					0.40	0.40	0.25	0.73	
Clearance Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Vehicle Extension (s)		2.3	2.3					6.9	6.9	2.3	6.9	
Lane Grp Cap (vph)		215	188					742	618	439	1354	
v/s Ratio Prot								c0.21		c0.17	0.31	
v/s Ratio Perm		0.07	0.01						0.11			
v/c Ratio		0.60	0.05					0.54	0.27	0.69	0.43	
Uniform Delay, d1		27.5	25.6					15.2	13.4	22.3	3.6	
Progression Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2		3.4	0.1					2.2	0.8	4.1	0.8	
Delay (s)		30.8	25.7					17.4	14.2	26.4	4.3	
Level of Service		C	C					B	B	C	A	
Approach Delay (s)		28.9			0.0			15.8			11.9	
Approach LOS		C			A			B			B	
Intersection Summary												
HCM 2000 Control Delay		15.4										
HCM 2000 Volume to Capacity ratio		0.60										
Actuated Cycle Length (s)		66.0										
Intersection Capacity Utilization		77.2%										
Analysis Period (min)		15										
c Critical Lane Group												

Intersection												
Int Delay, s/veh	49.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	123	8	40	40	7	136	31	426	71	113	367	99
Conflicting Peds, #/hr	1	0	6	6	0	1	9	0	0	0	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	200	-	-	100	-	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	1	0	3	0	0	2	0	4	2	2	3	1
Mvmt Flow	140	9	45	45	8	155	35	484	81	128	417	112

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1341	1377	488	1364	1393	539	536	0	0	571	0	0
Stage 1	736	736	-	601	601	-	-	-	-	-	-	-
Stage 2	605	641	-	763	792	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.5	6.23	7.1	6.5	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.11	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4	3.327	3.5	4	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 130	146	578	126	143	542	1042	-	-	1002	-	-
Stage 1	412	428	-	491	493	-	-	-	-	-	-	-
Stage 2	486	473	-	400	404	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 75	120	571	94	117	535	1034	-	-	994	-	-
Mov Cap-2 Maneuver	~ 75	120	-	94	117	-	-	-	-	-	-	-
Stage 1	389	371	-	464	466	-	-	-	-	-	-	-
Stage 2	320	447	-	311	350	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 383.6	31.4	0.5	1.8
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1034	-	-	75	351	97	535	994	-	-
HCM Lane V/C Ratio	0.034	-	-	1.864	0.155	0.551	0.289	0.129	-	-
HCM Control Delay (s)	8.6	0	-	\$ 526.6	17.1	80.4	14.4	9.2	-	-
HCM Lane LOS	A	A	-	F	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	12.3	0.5	2.5	1.2	0.4	-	-

Notes										
-: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon				

Intersection									
Intersection Delay, s/veh	31.7								
Intersection LOS	D								
Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Vol, veh/h	0	391	470	0	168	141	0	171	278
Peak Hour Factor	0.92	0.94	0.94	0.92	0.94	0.94	0.92	0.94	0.94
Heavy Vehicles, %	2	4	3	2	2	2	2	4	2
Mvmt Flow	0	416	500	0	179	150	0	182	296
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	43.6	19.3	17.3
HCM LOS	E	C	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	54%	0%	0%
Vol Right, %	0%	0%	46%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	391	470	309	171	278
LT Vol	391	0	0	171	0
Through Vol	0	470	168	0	0
RT Vol	0	0	141	0	278
Lane Flow Rate	416	500	329	182	296
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.834	0.93	0.604	0.408	0.559
Departure Headway (Hd)	7.221	6.694	6.61	8.067	6.804
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	499	540	546	446	529
Service Time	4.989	4.461	4.662	5.828	4.565
HCM Lane V/C Ratio	0.834	0.926	0.603	0.408	0.56
HCM Control Delay	36.9	49.2	19.3	16.3	17.9
HCM Lane LOS	E	E	C	C	C
HCM 95th-tile Q	8.3	11.5	4	2	3.4

HCM 2010 TWSC
1: Tannler Drive & North Access

7/7/2015

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	4	31	46	113	83	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	34	50	123	90	5

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	316	93	96 0
Stage 1	93	-	- -
Stage 2	223	-	- -
Critical Hdwy	6.42	6.22	4.12 -
Critical Hdwy Stg 1	5.42	-	- -
Critical Hdwy Stg 2	5.42	-	- -
Follow-up Hdwy	3.518	3.318	2.218 -
Pot Cap-1 Maneuver	677	964	1498 -
Stage 1	931	-	- -
Stage 2	814	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	653	964	1498 -
Mov Cap-2 Maneuver	653	-	- -
Stage 1	931	-	- -
Stage 2	785	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	9.1	2.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1498	-	914	-	-
HCM Lane V/C Ratio	0.033	-	0.042	-	-
HCM Control Delay (s)	7.5	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

HCM 2010 TWSC
2: 13th Street & Blankenship Road

7/7/2015

Intersection												
Int Delay, s/veh	1.1											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Vol, veh/h	0	0	0	38	0	5	9	420	0	1	323	47
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	25	25	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	92
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	0	0
Mvmt Flow	0	0	0	40	0	5	9	442	0	1	340	51
Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	835	858	469	833	833	393	393	0	0	444	0	0
Stage 1	463	463	-	370	370	-	-	-	-	-	-	-
Stage 2	372	395	-	463	463	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	289	297	598	290	307	660	1177	-	-	1127	-	-
Stage 1	583	568	-	654	624	-	-	-	-	-	-	-
Stage 2	653	608	-	583	568	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	278	293	585	281	303	645	1152	-	-	1104	-	-
Mov Cap-2 Maneuver	278	293	-	281	303	-	-	-	-	-	-	-
Stage 1	576	561	-	646	622	-	-	-	-	-	-	-
Stage 2	634	606	-	565	561	-	-	-	-	-	-	-
Approach	NB			SB			SE			NW		
HCM Control Delay, s	0			19.1			0.2			0		
HCM LOS	A			C								
Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1				
Capacity (veh/h)	-	1104	-	-	1152	-	-	301				
HCM Lane V/C Ratio	-	0.001	-	-	0.008	-	-	0.15				
HCM Control Delay (s)	0	8.3	0	-	8.2	0	-	19.1				
HCM Lane LOS	A	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.5				

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	399	57	51	313	49	56	5	51	57	7	5
Conflicting Peds, #/hr	1	0	7	7	0	1	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	3	4	2	1	0	0	0	2	0	0	0
Mvmt Flow	4	424	61	54	333	52	60	5	54	61	7	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	487	0	0	941	961	464	965	966	368
Stage 1	-	-	-	-	-	-	465	465	-	470	470	-
Stage 2	-	-	-	-	-	-	476	496	-	495	496	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.5	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1183	-	-	1076	-	-	245	258	598	236	257	682
Stage 1	-	-	-	-	-	-	581	566	-	578	563	-
Stage 2	-	-	-	-	-	-	574	549	-	560	549	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1176	-	-	1070	-	-	226	243	594	201	242	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	226	243	-	201	242	-
Stage 1	-	-	-	-	-	-	578	563	-	575	534	-
Stage 2	-	-	-	-	-	-	530	520	-	499	546	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.1			23.1			30		
HCM LOS							C			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	316	1176	-	-	1070	-	-	216				
HCM Lane V/C Ratio	0.377	0.004	-	-	0.051	-	-	0.34				
HCM Control Delay (s)	23.1	8.1	-	-	8.5	-	-	30				
HCM Lane LOS	C	A	-	-	A	-	-	D				
HCM 95th %tile Q(veh)	1.7	0	-	-	0.2	-	-	1.4				

Intersection

Int Delay, s/veh 13.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	56	437	15	109	364	95	21	10	108	75	7	32
Conflicting Peds, #/hr	0	0	2	7	0	1	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	2	1	0	0	10	3	3	0	0
Mvmt Flow	59	460	16	115	383	100	22	11	114	79	7	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	485	0	0	478	0	0	1273	1303	477	1258	1261	437
Stage 1	-	-	-	-	-	-	588	588	-	665	665	-
Stage 2	-	-	-	-	-	-	685	715	-	593	596	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.6	6.23	7.13	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4.09	3.327	3.527	4	3.3
Pot Cap-1 Maneuver	1088	-	-	1084	-	-	146	155	586	147	172	624
Stage 1	-	-	-	-	-	-	499	483	-	448	461	-
Stage 2	-	-	-	-	-	-	441	423	-	490	495	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1086	-	-	1078	-	-	117	131	582	97	145	622
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	131	-	97	145	-
Stage 1	-	-	-	-	-	-	471	456	-	423	411	-
Stage 2	-	-	-	-	-	-	365	377	-	362	467	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	1.7	20	121.7
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	121	582	1086	-	-	1078	-	-	131
HCM Lane V/C Ratio	0.27	0.195	0.054	-	-	0.106	-	-	0.916
HCM Control Delay (s)	45.4	12.7	8.5	-	-	8.7	-	-	121.7
HCM Lane LOS	E	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1	0.7	0.2	-	-	0.4	-	-	6.1

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















7/7/2015

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	118	501	331	98	474	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	6.0	5.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1881	1583	1770	1900	1787	1599
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1881	1583	1770	1900	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	134	569	376	111	539	353
RTOR Reduction (vph)	0	153	0	0	0	26
Lane Group Flow (vph)	134	416	376	111	539	327
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	1%	2%	2%	0%	1%	1%
Turn Type	NA	custom	Prot	NA	Prot	custom
Protected Phases	4	4 5 7	3	8	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	10.5	63.0	26.8	42.3	63.3	95.6
Effective Green, g (s)	10.5	63.0	26.8	42.3	63.3	95.6
Actuated g/C Ratio	0.09	0.54	0.23	0.36	0.54	0.82
Clearance Time (s)	5.5		5.5	6.0		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	168	851	405	686	965	1305
v/s Ratio Prot	c0.07	c0.26	c0.21	0.06	c0.30	0.20
v/s Ratio Perm						
v/c Ratio	0.80	0.49	0.93	0.16	0.56	0.25
Uniform Delay, d1	52.3	17.0	44.2	25.4	17.7	2.5
Progression Factor	1.00	1.00	1.00	1.00	0.43	0.09
Incremental Delay, d2	21.6	0.3	27.1	0.1	0.7	0.0
Delay (s)	73.9	17.2	71.3	25.4	8.4	0.3
Level of Service	E	B	E	C	A	A
Approach Delay (s)	28.0			60.9	5.2	
Approach LOS	C			E	A	
Intersection Summary						
HCM 2000 Control Delay			25.9		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.77			
Actuated Cycle Length (s)			117.1		Sum of lost time (s)	27.5
Intersection Capacity Utilization			60.8%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp



















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	202	4	375	100	402	0	0	613	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frpb, ped/bikes					1.00	1.00	1.00	1.00			0.98	
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	
Frt					1.00	0.85	1.00	1.00			0.96	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1752	1583	1703	1863			3284	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1752	1583	1703	1863			3284	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	224	4	417	111	447	0	0	681	244
RTOR Reduction (vph)	0	0	0	0	0	358	0	0	0	0	30	0
Lane Group Flow (vph)	0	0	0	0	228	59	111	447	0	0	895	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	0%	0%	0%	3%	25%	2%	6%	2%	0%	0%	3%	5%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					16.5	16.5	10.4	30.5			68.2	
Effective Green, g (s)					16.5	16.5	10.4	30.5			68.2	
Actuated g/C Ratio					0.14	0.14	0.09	0.26			0.58	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					246	223	151	485			1912	
v/s Ratio Prot					c0.13		0.07	c0.24			c0.27	
v/s Ratio Perm						0.04						
v/c Ratio					0.93	0.26	0.74	0.92			0.47	
Uniform Delay, d1					49.7	44.9	52.0	42.1			14.0	
Progression Factor					1.00	1.00	1.00	1.00			0.64	
Incremental Delay, d2					37.5	0.4	15.5	24.0			0.1	
Delay (s)					87.2	45.2	67.5	66.2			9.0	
Level of Service					F	D	E	E			A	
Approach Delay (s)		0.0			60.1			66.4			9.0	
Approach LOS		A			E			E			A	
Intersection Summary												
HCM 2000 Control Delay			39.5		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			117.1		Sum of lost time (s)					27.5		
Intersection Capacity Utilization			55.1%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 10th Street & I-205 Northbound Ramp

7/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	139	1	71	0	0	0	0	361	331	295	523	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lane Util. Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1775	1553					1863	1553	1736	1863	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1775	1553					1863	1553	1736	1863	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	158	1	81	0	0	0	0	410	376	335	594	0
RTOR Reduction (vph)	0	0	68	0	0	0	0	0	214	0	0	0
Lane Group Flow (vph)	0	159	13	0	0	0	0	410	162	335	594	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	2%	0%	4%	0%	0%	0%	0%	2%	4%	4%	2%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8						6			
Actuated Green, G (s)		11.4	11.4					26.5	26.5	18.1	49.6	
Effective Green, g (s)		11.4	11.4					26.5	26.5	18.1	49.6	
Actuated g/C Ratio		0.16	0.16					0.37	0.37	0.25	0.70	
Clearance Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Vehicle Extension (s)		2.3	2.3					6.9	6.9	2.3	6.9	
Lane Grp Cap (vph)		285	249					695	579	442	1301	
v/s Ratio Prot								c0.22		c0.19	0.32	
v/s Ratio Perm		0.09	0.01						0.10			
v/c Ratio		0.56	0.05					0.59	0.28	0.76	0.46	
Uniform Delay, d1		27.5	25.2					17.9	15.6	24.4	4.7	
Progression Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.7	0.1					2.9	0.9	6.8	0.9	
Delay (s)		29.2	25.3					20.8	16.5	31.2	5.6	
Level of Service		C	C					C	B	C	A	
Approach Delay (s)		27.8			0.0			18.7			14.8	
Approach LOS		C			A			B			B	
Intersection Summary												
HCM 2000 Control Delay		18.0										
HCM 2000 Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		71.0										
Intersection Capacity Utilization		81.4%										
Analysis Period (min)		15										
c Critical Lane Group												

Intersection												
Int Delay, s/veh	52.5											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	123	8	40	40	7	136	31	436	71	113	375	99
Conflicting Peds, #/hr	1	0	6	6	0	1	9	0	0	0	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	200	-	-	100	-	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	1	0	3	0	0	2	0	4	2	2	3	1
Mvmt Flow	140	9	45	45	8	155	35	495	81	128	426	112

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1361	1398	497	1384	1413	551	545	0	0	582	0	0
Stage 1	745	745	-	612	612	-	-	-	-	-	-	-
Stage 2	616	653	-	772	801	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.5	6.23	7.1	6.5	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.11	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4	3.327	3.5	4	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 126	142	571	122	139	534	1034	-	-	992	-	-
Stage 1	408	424	-	484	487	-	-	-	-	-	-	-
Stage 2	480	467	-	395	400	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 72	116	564	90	114	527	1026	-	-	985	-	-
Mov Cap-2 Maneuver	~ 72	116	-	90	114	-	-	-	-	-	-	-
Stage 1	385	367	-	457	460	-	-	-	-	-	-	-
Stage 2	314	441	-	306	346	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 410.8	33	0.5	1.8
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1026	-	-	72	343	93	527	985	-	-
HCM Lane V/C Ratio	0.034	-	-	1.941	0.159	0.574	0.293	0.13	-	-
HCM Control Delay (s)	8.6	0	-	\$ 564.3	17.5	86.4	14.6	9.2	-	-
HCM Lane LOS	A	A	-	F	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	12.6	0.6	2.6	1.2	0.4	-	-

Notes										
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon										

Intersection									
Intersection Delay, s/veh	32.6								
Intersection LOS	D								
Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Vol, veh/h	0	396	470	0	168	146	0	175	282
Peak Hour Factor	0.92	0.94	0.94	0.92	0.94	0.94	0.92	0.94	0.94
Heavy Vehicles, %	2	4	3	2	2	2	2	4	2
Mvmt Flow	0	421	500	0	179	155	0	186	300
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	45.2	19.8	17.6
HCM LOS	E	C	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	54%	0%	0%
Vol Right, %	0%	0%	46%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	396	470	314	175	282
LT Vol	396	0	0	175	0
Through Vol	0	470	168	0	0
RT Vol	0	0	146	0	282
Lane Flow Rate	421	500	334	186	300
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.85	0.935	0.615	0.418	0.569
Departure Headway (Hd)	7.26	6.733	6.632	8.088	6.825
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	497	535	544	445	528
Service Time	5.029	4.501	4.684	5.849	4.585
HCM Lane V/C Ratio	0.847	0.935	0.614	0.418	0.568
HCM Control Delay	39.1	50.3	19.8	16.6	18.3
HCM Lane LOS	E	F	C	C	C
HCM 95th-tile Q	8.7	11.6	4.1	2	3.5

Queuing and Blocking Report Existing (2015)

7/9/2015

Intersection: 1: Tannler Drive & North Access

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 2: 13th Street & Blankenship Road

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 3: Haggen's Access/Site Access & Blankenship Road

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Queuing and Blocking Report
Existing (2015)

7/9/2015

Intersection: 4: Haggen's Site Access/Tannler Drive & Blankenship Road

Movement	EB	WB	NB	NB	SB
Directions Served	L	L	LT	R	LTR
Maximum Queue (ft)	40	46	31	51	100
Average Queue (ft)	5	13	4	22	46
95th Queue (ft)	26	36	19	47	80
Link Distance (ft)			283	283	848
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	50	150			
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 5: 10th Street & Blankenship Road/Salamo Drive

Movement	EB	EB	WB	WB	NB
Directions Served	T	R	L	T	L
Maximum Queue (ft)	91	168	250	429	113
Average Queue (ft)	26	83	203	127	44
95th Queue (ft)	65	140	278	390	94
Link Distance (ft)	244			1335	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		100	200		100
Storage Blk Time (%)	0	4	17	0	1
Queuing Penalty (veh)	1	1	10	0	3

Intersection: 6: 10th Street & I-205 Southbound Ramp

Movement	WB	WB	NB	NB	B19	SB	SB
Directions Served	LT	R	L	T	T	T	TR
Maximum Queue (ft)	166	121	208	298	212	140	102
Average Queue (ft)	80	53	127	205	40	62	37
95th Queue (ft)	148	98	228	321	169	121	79
Link Distance (ft)		2045		208	265	171	171
Upstream Blk Time (%)			0	16	1		
Queuing Penalty (veh)			0	79	5		
Storage Bay Dist (ft)	225		200				
Storage Blk Time (%)			1	17			
Queuing Penalty (veh)			3	25			

Queuing and Blocking Report

Existing (2015)

7/9/2015

Intersection: 7: 10th Street & I-205 Northbound Ramp

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	186	102	222	180	191	210
Average Queue (ft)	108	33	148	68	112	56
95th Queue (ft)	177	86	224	167	186	142
Link Distance (ft)		1148	204			265
Upstream Blk Time (%)			3			0
Queuing Penalty (veh)			15			0
Storage Bay Dist (ft)	175			130	150	
Storage Blk Time (%)	1	0	13		3	0
Queuing Penalty (veh)	2	0	26		9	1

Intersection: 8: 10th Street & 8th Avenue/8th Court

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	LT	R	LTR	L
Maximum Queue (ft)	72	32	164	128	119	70
Average Queue (ft)	18	9	43	49	15	29
95th Queue (ft)	48	30	121	96	68	58
Link Distance (ft)	626		355		202	
Upstream Blk Time (%)					0	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)		200		100		125
Storage Blk Time (%)			1	4		
Queuing Penalty (veh)			1	3		

Intersection: 9: Willamette Falls Drive & 10th Street

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	125	85	336	75	82
Average Queue (ft)	66	45	126	28	36
95th Queue (ft)	106	72	249	54	63
Link Distance (ft)		1144	2159		202
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	220			100	
Storage Blk Time (%)				0	0
Queuing Penalty (veh)				0	0

Zone Summary

Zone wide Queuing Penalty: 186

Intersection: 1: Tannler Drive & North Access

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 2: 13th Street & Blankenship Road

Movement	NB	SB	SE
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	24	67	38
Average Queue (ft)	2	27	2
95th Queue (ft)	11	50	18
Link Distance (ft)	478	467	134
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Haggen's Access/Site Access & Blankenship Road

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	18	52	16	90	29
Average Queue (ft)	1	11	1	32	6
95th Queue (ft)	8	37	11	63	25
Link Distance (ft)			285	307	450
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	50	50			
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	0	0			

Intersection: 4: Haggen's Site Access/Tannler Drive & Blankenship Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	52	4	52	1	30	62	100
Average Queue (ft)	6	0	14	0	4	25	50
95th Queue (ft)	31	3	38	1	20	52	90
Link Distance (ft)		285		244	283	283	848
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50		150				
Storage Blk Time (%)	0						
Queuing Penalty (veh)	1						

Intersection: 5: 10th Street & Blankenship Road/Salamo Drive

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	137	181	250	516	112	32
Average Queue (ft)	38	87	218	198	45	1
95th Queue (ft)	98	151	293	498	97	23
Link Distance (ft)	244			1335		171
Upstream Blk Time (%)	0					0
Queuing Penalty (veh)	0					0
Storage Bay Dist (ft)		100	200		100	
Storage Blk Time (%)	0	5	28		1	
Queuing Penalty (veh)	2	2	16		3	

Intersection: 6: 10th Street & I-205 Southbound Ramp

Movement	WB	WB	NB	NB	B19	SB	SB
Directions Served	LT	R	L	T	T	T	TR
Maximum Queue (ft)	176	178	228	331	266	156	153
Average Queue (ft)	89	66	153	233	57	71	45
95th Queue (ft)	165	127	263	352	206	135	106
Link Distance (ft)		2045		228	244	171	171
Upstream Blk Time (%)			0	20	2	0	0
Queuing Penalty (veh)			0	108	11	0	0
Storage Bay Dist (ft)	225		200				
Storage Blk Time (%)	1		2	25			
Queuing Penalty (veh)	1		6	40			

Queuing and Blocking Report

Pre-Development (2017)

7/9/2015

Intersection: 7: 10th Street & I-205 Northbound Ramp

Movement	EB	EB	NB	NB	SB	SB	B19
Directions Served	LT	R	T	R	L	T	T
Maximum Queue (ft)	207	175	221	180	199	286	16
Average Queue (ft)	110	37	163	86	119	74	1
95th Queue (ft)	181	99	241	196	205	208	16
Link Distance (ft)		1148	204			244	228
Upstream Blk Time (%)			6			1	
Queuing Penalty (veh)			31			5	
Storage Bay Dist (ft)	175			130	150		
Storage Blk Time (%)	2	0	18	0	6	0	
Queuing Penalty (veh)	2	0	36	0	19	1	

Intersection: 8: 10th Street & 8th Avenue/8th Court

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	LT	R	LTR	L
Maximum Queue (ft)	57	28	140	120	167	91
Average Queue (ft)	16	11	43	56	28	35
95th Queue (ft)	43	33	121	105	103	71
Link Distance (ft)	626		355		202	
Upstream Blk Time (%)			1		0	
Queuing Penalty (veh)			0		2	
Storage Bay Dist (ft)		200		100		125
Storage Blk Time (%)			0	3		0
Queuing Penalty (veh)			0	2		0

Intersection: 9: Willamette Falls Drive & 10th Street

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	185	160	368	67	109
Average Queue (ft)	80	52	157	26	44
95th Queue (ft)	141	108	296	47	84
Link Distance (ft)		1144	2159		202
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	220			100	
Storage Blk Time (%)	1			0	0
Queuing Penalty (veh)	2			0	0

Zone Summary

Zone wide Queuing Penalty: 292

Queuing and Blocking Report Post-Development (2017)

7/7/2015

Intersection: 1: Tannler Drive & North Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	56	25
Average Queue (ft)	25	2
95th Queue (ft)	47	14
Link Distance (ft)	292	848
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: 13th Street & Blankenship Road

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	24	79	13	9
Average Queue (ft)	2	28	1	0
95th Queue (ft)	12	56	6	4
Link Distance (ft)	478	467	134	49
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Haggen's Access/Site Access & Blankenship Road

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	24	37	70	66
Average Queue (ft)	2	11	30	32
95th Queue (ft)	15	36	60	59
Link Distance (ft)			307	450
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50	50		
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection: 4: Haggen's Site Access/Tannler Drive & Blankenship Road

Movement	EB	EB	WB	NB	NB	SB
Directions Served	L	TR	L	LT	R	LTR
Maximum Queue (ft)	54	15	52	30	54	160
Average Queue (ft)	8	1	14	4	24	65
95th Queue (ft)	33	11	40	20	50	120
Link Distance (ft)		285		283	283	848
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	50		150			
Storage Blk Time (%)	0					
Queuing Penalty (veh)	1					

Intersection: 5: 10th Street & Blankenship Road/Salamo Drive

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	185	191	250	701	118	49
Average Queue (ft)	46	113	227	292	51	2
95th Queue (ft)	115	188	289	732	100	27
Link Distance (ft)	244			1335		171
Upstream Blk Time (%)	0					0
Queuing Penalty (veh)	0					0
Storage Bay Dist (ft)		100	200		100	
Storage Blk Time (%)	1	9	36		2	
Queuing Penalty (veh)	4	4	22		4	

Intersection: 6: 10th Street & I-205 Southbound Ramp

Movement	WB	WB	NB	NB	B19	SB	SB
Directions Served	LT	R	L	T	T	T	TR
Maximum Queue (ft)	200	170	218	317	326	178	197
Average Queue (ft)	105	62	163	251	110	92	60
95th Queue (ft)	196	118	264	347	318	160	137
Link Distance (ft)		2045		218	255	171	171
Upstream Blk Time (%)			1	29	8	1	1
Queuing Penalty (veh)			0	161	45	4	4
Storage Bay Dist (ft)	225		200				
Storage Blk Time (%)	1	0	3	32			
Queuing Penalty (veh)	2	0	12	51			

Queuing and Blocking Report

Post-Development (2017)

7/7/2015

Intersection: 7: 10th Street & I-205 Northbound Ramp

Movement	EB	EB	NB	NB	SB	SB	B19
Directions Served	LT	R	T	R	L	T	T
Maximum Queue (ft)	207	353	224	180	200	332	214
Average Queue (ft)	124	66	172	98	142	116	25
95th Queue (ft)	203	264	249	214	228	300	138
Link Distance (ft)		1148	204			255	218
Upstream Blk Time (%)			9			6	2
Queuing Penalty (veh)			51			43	6
Storage Bay Dist (ft)	175			130	150		
Storage Blk Time (%)	7	0	24	0	15	0	
Queuing Penalty (veh)	10	1	48	1	53	1	

Intersection: 8: 10th Street & 8th Avenue/8th Court

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	LT	R	LTR	L
Maximum Queue (ft)	95	28	267	146	200	83
Average Queue (ft)	22	11	65	65	44	34
95th Queue (ft)	67	33	205	129	145	64
Link Distance (ft)	626		355		202	
Upstream Blk Time (%)			3		1	
Queuing Penalty (veh)			0		7	
Storage Bay Dist (ft)		200		100		125
Storage Blk Time (%)			1	12		
Queuing Penalty (veh)			2	8		

Intersection: 9: Willamette Falls Drive & 10th Street

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	198	101	571	81	105
Average Queue (ft)	89	48	225	31	43
95th Queue (ft)	162	79	596	58	80
Link Distance (ft)		1144	2159		202
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	220			100	
Storage Blk Time (%)	0			0	0
Queuing Penalty (veh)	1			0	0

Zone Summary

Zone wide Queuing Penalty: 544

Queuing and Blocking Report

Existing (2015)

7/7/2015

Intersection: 1: Tannler Drive & North Access

Movement

Directions Served
 Maximum Queue (ft)
 Average Queue (ft)
 95th Queue (ft)
 Link Distance (ft)
 Upstream Blk Time (%)
 Queuing Penalty (veh)
 Storage Bay Dist (ft)
 Storage Blk Time (%)
 Queuing Penalty (veh)

Intersection: 2: 13th Street & Blankenship Road

Movement	SB	SE	NW
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	55	16	9
Average Queue (ft)	24	1	0
95th Queue (ft)	45	7	5
Link Distance (ft)	405	161	88
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Haggen's Access/Site Access & Blankenship Road

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	6	28	55	27	72	44
Average Queue (ft)	0	1	16	1	42	21
95th Queue (ft)	4	12	44	14	68	46
Link Distance (ft)		270		280	307	450
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	50		50			
Storage Blk Time (%)		0	0	0		
Queuing Penalty (veh)		0	1	0		

Queuing and Blocking Report
Existing (2015)

7/7/2015

Intersection: 4: Haggen's Site Access/Tannler Drive & Blankenship Road

Movement	EB	EB	WB	NB	NB	SB
Directions Served	L	TR	L	LT	R	LTR
Maximum Queue (ft)	45	16	57	72	91	99
Average Queue (ft)	12	1	22	24	42	37
95th Queue (ft)	35	8	46	57	71	72
Link Distance (ft)		280		283	283	848
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	50		150			
Storage Blk Time (%)	0	0				
Queuing Penalty (veh)	0	0				

Intersection: 5: 10th Street & Blankenship Road/Salamo Drive

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	165	191	249	444	118	54
Average Queue (ft)	73	73	183	95	54	2
95th Queue (ft)	138	142	265	295	104	30
Link Distance (ft)	248			1332		171
Upstream Blk Time (%)						0
Queuing Penalty (veh)						0
Storage Bay Dist (ft)		100	200		100	
Storage Blk Time (%)	7	2	12	0	2	0
Queuing Penalty (veh)	29	2	10	0	5	0

Intersection: 6: 10th Street & I-205 Southbound Ramp

Movement	WB	WB	NB	NB	B19	SB	SB
Directions Served	LT	R	L	T	T	T	TR
Maximum Queue (ft)	225	218	224	288	52	153	134
Average Queue (ft)	132	75	86	186	3	72	28
95th Queue (ft)	209	143	183	284	29	125	77
Link Distance (ft)		2045		225	248	171	171
Upstream Blk Time (%)			0	5		0	0
Queuing Penalty (veh)			0	21		0	0
Storage Bay Dist (ft)	225		200				
Storage Blk Time (%)	0		0	9			
Queuing Penalty (veh)	1		0	8			

Queuing and Blocking Report

Existing (2015)

7/7/2015

Intersection: 7: 10th Street & I-205 Northbound Ramp

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	119	50	187	169	194	225
Average Queue (ft)	47	23	84	63	109	76
95th Queue (ft)	90	44	146	122	175	174
Link Distance (ft)		1148	204			248
Upstream Blk Time (%)			0			0
Queuing Penalty (veh)			1			1
Storage Bay Dist (ft)	175			130	150	
Storage Blk Time (%)			2	0	2	0
Queuing Penalty (veh)			5	0	12	1

Intersection: 8: 10th Street & 8th Avenue/8th Court

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	LTR	L	TR
Maximum Queue (ft)	243	142	104	100	123	100	27
Average Queue (ft)	85	36	30	46	22	27	1
95th Queue (ft)	206	125	70	78	79	61	12
Link Distance (ft)	626		355		202		204
Upstream Blk Time (%)					0		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)		200		100		125	
Storage Blk Time (%)	6	0	0	1		0	
Queuing Penalty (veh)	3	0	0	0		1	

Intersection: 9: Willamette Falls Drive & 10th Street

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	193	269	153	97	115
Average Queue (ft)	96	105	80	44	46
95th Queue (ft)	168	217	128	81	85
Link Distance (ft)		1144	2159		202
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	220			100	
Storage Blk Time (%)	1	1		0	0
Queuing Penalty (veh)	4	5		1	0

Zone Summary

Zone wide Queuing Penalty: 115

Intersection: 1: Tannler Drive & North Access

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 2: 13th Street & Blankenship Road

Movement

	SB	SE	NW
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	64	29	15
Average Queue (ft)	25	2	1
95th Queue (ft)	54	14	8
Link Distance (ft)	405	161	88
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Haggen's Access/Site Access & Blankenship Road

Movement

	EB	WB	WB	NB	SB
Directions Served	TR	L	TR	LTR	LTR
Maximum Queue (ft)	12	54	6	91	66
Average Queue (ft)	1	18	0	49	23
95th Queue (ft)	9	46	4	85	51
Link Distance (ft)	270		280	307	450
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		50			
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	0	1			

Intersection: 4: Haggen's Site Access/Tannler Drive & Blankenship Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	41	48	82	3	69	90	105
Average Queue (ft)	14	2	24	0	23	44	40
95th Queue (ft)	37	29	59	1	53	77	81
Link Distance (ft)		280		248	283	283	848
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50		150				
Storage Blk Time (%)	0	0					
Queuing Penalty (veh)	1	0					

Intersection: 5: 10th Street & Blankenship Road/Salamo Drive

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	214	178	250	422	126	112
Average Queue (ft)	83	76	192	114	60	6
95th Queue (ft)	157	137	273	325	112	49
Link Distance (ft)	248			1332		171
Upstream Blk Time (%)	0					0
Queuing Penalty (veh)	1					1
Storage Bay Dist (ft)		100	200		100	
Storage Blk Time (%)	9	2	14	0	3	0
Queuing Penalty (veh)	42	2	12	0	8	0

Intersection: 6: 10th Street & I-205 Southbound Ramp

Movement	WB	WB	NB	NB	B19	SB	SB
Directions Served	LT	R	L	T	T	T	TR
Maximum Queue (ft)	250	278	208	290	181	155	114
Average Queue (ft)	145	102	121	215	22	78	27
95th Queue (ft)	241	200	225	314	95	136	78
Link Distance (ft)		2045		208	265	171	171
Upstream Blk Time (%)			0	14		0	0
Queuing Penalty (veh)			0	64		0	0
Storage Bay Dist (ft)	225		200				
Storage Blk Time (%)	4	0	0	15			
Queuing Penalty (veh)	12	0	1	16			

Intersection: 7: 10th Street & I-205 Northbound Ramp

Movement	EB	EB	NB	NB	SB	SB	B19
Directions Served	LT	R	T	R	L	T	T
Maximum Queue (ft)	130	62	178	175	196	265	49
Average Queue (ft)	57	24	91	68	121	89	2
95th Queue (ft)	106	48	160	132	188	207	27
Link Distance (ft)		1148	204			265	208
Upstream Blk Time (%)			0			1	
Queuing Penalty (veh)			0			4	
Storage Bay Dist (ft)	175			130	150		
Storage Blk Time (%)	0		2	0	4	0	
Queuing Penalty (veh)	0		6	1	22	1	

Intersection: 8: 10th Street & 8th Avenue/8th Court

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	LTR	L	TR
Maximum Queue (ft)	268	164	135	132	136	66	23
Average Queue (ft)	110	43	41	54	24	30	2
95th Queue (ft)	270	136	97	100	81	56	14
Link Distance (ft)	626		355		202		204
Upstream Blk Time (%)					0		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)		200		100		125	
Storage Blk Time (%)	9		2	1			
Queuing Penalty (veh)	4		2	1			

Intersection: 9: Willamette Falls Drive & 10th Street

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	245	270	142	98	107
Average Queue (ft)	112	117	80	43	48
95th Queue (ft)	201	225	126	76	85
Link Distance (ft)		1144	2159		202
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	220			100	
Storage Blk Time (%)	1	1		0	0
Queuing Penalty (veh)	6	2		0	0

Zone Summary

Zone wide Queuing Penalty: 214

Queuing and Blocking Report

Post-Development (2017)

7/7/2015

Intersection: 1: Tannler Drive & North Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	50	31
Average Queue (ft)	21	5
95th Queue (ft)	46	24
Link Distance (ft)	292	848
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: 13th Street & Blankenship Road

Movement	SB	SE	NW
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	63	58	8
Average Queue (ft)	24	4	0
95th Queue (ft)	52	25	5
Link Distance (ft)	405	161	88
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Haggen's Access/Site Access & Blankenship Road

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	12	17	48	36	89	78
Average Queue (ft)	1	1	16	1	47	36
95th Queue (ft)	7	10	43	14	81	67
Link Distance (ft)		270		280	307	450
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	50		50			
Storage Blk Time (%)		0	0	0		
Queuing Penalty (veh)		0	0	0		

Queuing and Blocking Report
Post-Development (2017)

7/7/2015

Intersection: 4: Haggen's Site Access/Tannler Drive & Blankenship Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	40	67	70	15	74	98	214
Average Queue (ft)	14	4	23	1	28	48	81
95th Queue (ft)	36	36	51	9	60	81	184
Link Distance (ft)		280		248	283	283	848
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50		150				
Storage Blk Time (%)	0	0					
Queuing Penalty (veh)	1	0					

Intersection: 5: 10th Street & Blankenship Road/Salamo Drive

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	233	197	250	506	140	118
Average Queue (ft)	101	86	200	156	79	9
95th Queue (ft)	177	161	276	471	135	71
Link Distance (ft)	248			1332		171
Upstream Blk Time (%)	0					0
Queuing Penalty (veh)	2					1
Storage Bay Dist (ft)		100	200		100	
Storage Blk Time (%)	18	3	20	0	6	
Queuing Penalty (veh)	94	3	20	0	19	

Intersection: 6: 10th Street & I-205 Southbound Ramp

Movement	WB	WB	NB	NB	B19	SB	SB
Directions Served	LT	R	L	T	T	T	TR
Maximum Queue (ft)	250	307	238	322	207	178	165
Average Queue (ft)	146	121	132	258	57	85	39
95th Queue (ft)	245	253	260	356	202	150	103
Link Distance (ft)		2045		238	235	171	171
Upstream Blk Time (%)			0	20	3	0	0
Queuing Penalty (veh)			0	105	14	1	1
Storage Bay Dist (ft)	225		200				
Storage Blk Time (%)	4	0	1	29			
Queuing Penalty (veh)	17	1	3	29			

Queuing and Blocking Report

Post-Development (2017)

7/7/2015

Intersection: 7: 10th Street & I-205 Northbound Ramp

Movement	EB	EB	NB	NB	SB	SB	B19
Directions Served	LT	R	T	R	L	T	T
Maximum Queue (ft)	165	88	215	180	199	298	85
Average Queue (ft)	80	26	114	79	134	111	9
95th Queue (ft)	140	64	194	159	203	249	85
Link Distance (ft)		1148	204			235	238
Upstream Blk Time (%)			1			2	1
Queuing Penalty (veh)			10			20	3
Storage Bay Dist (ft)	175			130	150		
Storage Blk Time (%)	1	0	5	1	8	1	
Queuing Penalty (veh)	1	0	18	3	43	4	

Intersection: 8: 10th Street & 8th Avenue/8th Court

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	LTR	L	TR
Maximum Queue (ft)	445	178	140	137	166	94	29
Average Queue (ft)	227	65	45	59	34	32	2
95th Queue (ft)	546	210	113	111	117	67	13
Link Distance (ft)	626		355		202		204
Upstream Blk Time (%)	7				0		
Queuing Penalty (veh)	0				2		
Storage Bay Dist (ft)		200		100		125	
Storage Blk Time (%)	31	0	3	2		0	
Queuing Penalty (veh)	15	0	5	1		1	

Intersection: 9: Willamette Falls Drive & 10th Street

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	268	521	215	106	126
Average Queue (ft)	132	171	92	49	53
95th Queue (ft)	257	495	159	85	99
Link Distance (ft)		1144	2159		202
Upstream Blk Time (%)		1			
Queuing Penalty (veh)		0			
Storage Bay Dist (ft)	220			100	
Storage Blk Time (%)	9	3		0	1
Queuing Penalty (veh)	41	13		1	1

Zone Summary

Zone wide Queuing Penalty: 494

March 31, 2015

City of West Linn
Attention: Khoi Le
4100 Norfolk Street
West Linn, OR 97068

Re: **Tannler Drive Apartments**
Traffic Impact Analysis Scoping
Project Number 2130529.05

Dear Mr. Le:

As discussed in our recent telephone conversation, Mackenzie is providing the following scoping and assumptions in advance of preparing the required Traffic Impact Analysis (TIA) for the Tannler Drive Apartments project. We request that you confirm the assumptions regarding trip generation, trip distribution, study area intersections and analysis time periods, and request information on signal timing and in-process trips. We understand the Oregon Department of Transportation will review the TIA and provide comments and recommendations as appropriate.

SITE CONDITIONS

The proposed site for the Tannler Drive Apartments is located at the northwest corner of Tannler Drive and Blankenship Road. The project consists of approximately 200 apartment dwelling units and eight units of commercial space totaling up to 2,800 square feet.

The commercial space is to be located on the ground floor of each of the eight apartment buildings (about 350 square feet per building). Each space could be used for small office or retail tenants, which typically would have small trip generation numbers.

The project will have a driveway on Tannler Drive and a shared driveway with the existing office building to the west on Blankenship Road, opposite the driveway for the Haggen's shopping center (formerly Albertson's). Based on the proposed site layout, it is anticipated each driveway will serve half of the site traffic.

TRIP GENERATION

Trip generation estimates have been developed for the proposed land uses with the use of the Institute of Transportation Engineers' (ITE) *Trip Generation*, 9th Edition. The following land uses were used to estimate the traffic generated by the project.

- Apartments – LUC 220
- Specialty Retail Center – LUC 826



The “Apartments” land use was best representative of the residential portion of the project due to the size and nature. The larger buildings will include 24 units per building and the units will most likely be rented on an annual basis. Due to the small size of the commercial space in each building and the various uses that may lease the space, the land use “Specialty Retail Center” was considered most appropriate for determining trip generation. The specialty retail trip rate provides a higher number of trips than an office rate, but is less than the rate for a shopping center.

No internal capture reduction was applied to the development due to the low number of trips generated by the “Specialty Retail Center” land uses. For the same reason, no pass-by reduction was applied. The proposed development is estimated to generate 110 AM peak hour trips, 136 PM peak hour trips, and 1,460 daily trips. Although the number of apartment dwelling units has not yet been finalized, the range of units is anticipated to only affect the trip generation by +/- 10 total PM peak hour trips.

The trip generation for the proposed uses is shown in Table 1.

TABLE 1 – PROPOSED ZONE DESIGNATION TRIP GENERATION									
ITE Code	Land Use	Size	AM Peak Hour			PM Peak Hour			Daily
			<i>In</i>	<i>Out</i>	<i>Total</i>	<i>In</i>	<i>Out</i>	<i>Total</i>	
220	Apartment	200 d.u.	20	82	102	83	45	128	1,336
826	Specialty Retail Center	2.8 ksf	4	4	8	4	4	8	124
	Total		24	86	110	87	49	136	1,460

TRIP DISTRIBUTION & TRIP ASSIGNMENT

The distribution of trips for this development was established by estimating trip origins and destinations in the vicinity of the project location, similar to the original office use distribution from 2006. Changes in the distribution include residential neighborhoods in close proximity were assigned a lower trip distribution to/from the project, while areas with more trip destinations were assigned a higher trip distribution to/from the project – such as to the east on I-205. Trip distribution for the AM and PM peak hours is proposed as follows:

- 5% to/from the north on Tannler Drive
- 5% to/from the west on Blankenship Road
- 10% to/from the northeast on Salamo Road
- 5% to/from the south on the Haggen’s driveway (southeast corner of 13th Street and Blankenship Road)
- 40% to/from the east on I-205
- 25% to/from the west on I-205
- 5% to/from the east on Willamette Falls Drive
- 5% to/from the west on Willamette Falls Drive

Based on the above trip distribution, the proposed project peak hour trips were assigned to the external road network. The AM and PM peak hour trip distribution and assignment is shown in Figures A and B.

STUDY AREA

City staff have suggested the same study area from the 2006 analysis for the approved office development. Even though the study area is the same, the proposed project will generate significantly less peak hour traffic than the prior office proposal. Intersection turning movement counts will be conducted for these intersections in the AM and PM peak hours.

- 10th Street/I-205 Southbound Ramps
- 10th Street/I-205 Northbound Ramps
- 10th Street/Blakenship Road/Salamo Road
- 10th Street/Willamette Falls Drive
- Blankenship Road/Tannler Drive
- Blankenship Road/Site Access/Haggen's Access
- Blankenship Road/13th Street
- Tannler Drive/Site Access

TRAFFIC IMPACT ANALYSIS

The traffic impact analysis will review the conditions at the study area intersections for the following scenarios, during both the AM and PM peak hours.

- 2015 Existing
- 2016 Pre-Development without Tannler Apartments
- 2016 Post Development with Tannler Apartments

Intersection capacity analyses will be conducted for each scenario using Synchro software. Queuing analyses will also be conducted for the study intersections under all scenarios.

A safety evaluation will be conducted at the study intersections, which will include evaluating crash history as well as sight distance at the site driveway locations. Crash data will be compiled for the last five complete years of available statistics (January 1, 2009, to December 31, 2013). Crash rates will be computed for each intersection; if any intersection has a crash rate above 1.0/mev (million entering vehicles), that intersection will be more closely analyzed for potential mitigation. Intersection sight distance evaluations will be based on AASHTO methodology.

DATA REQUEST

In order to perform the intersection analyses for the study intersections, traffic signal timing plans are requested for the following intersections.

- 10th Street/I-205 Southbound Ramps
- 10th Street/I-205 Northbound Ramps
- 10th Street/Blakenship Road/Salamo Road

Please also provide in-process traffic volume projections from other developments in the study area, so we may more accurately estimate future traffic conditions in the area.

City of West Linn
Tannler Drive Apartments
Project Number 2130529.05
March 31, 2015
Page 4

The City of West Linn Capital Improvement Plan (CIP), Fiscal Years 2014-2019, has been reviewed for planned improvements. The only planned improvement in the study area is the 10th Street/I-205 Corridor Improvements project (FY 2019). The planned improvements include lane additions, new street connections, new traffic signals, sidewalks, and bike lanes. The total cost of the project is planned to be \$5,230,000, with \$785,000 being funded through SDCs. Please confirm this is the only project within the study area.

Should you have any questions, please contact me or Janet Jones.

Sincerely,



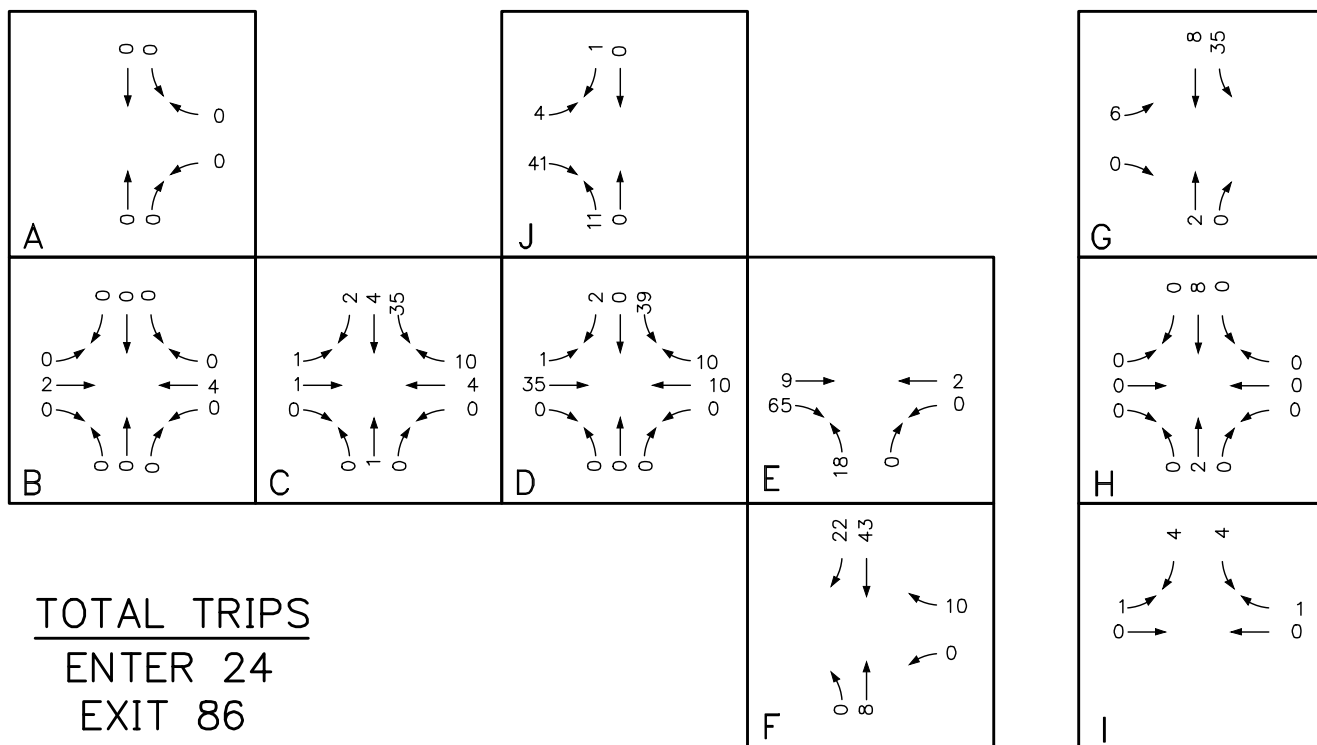
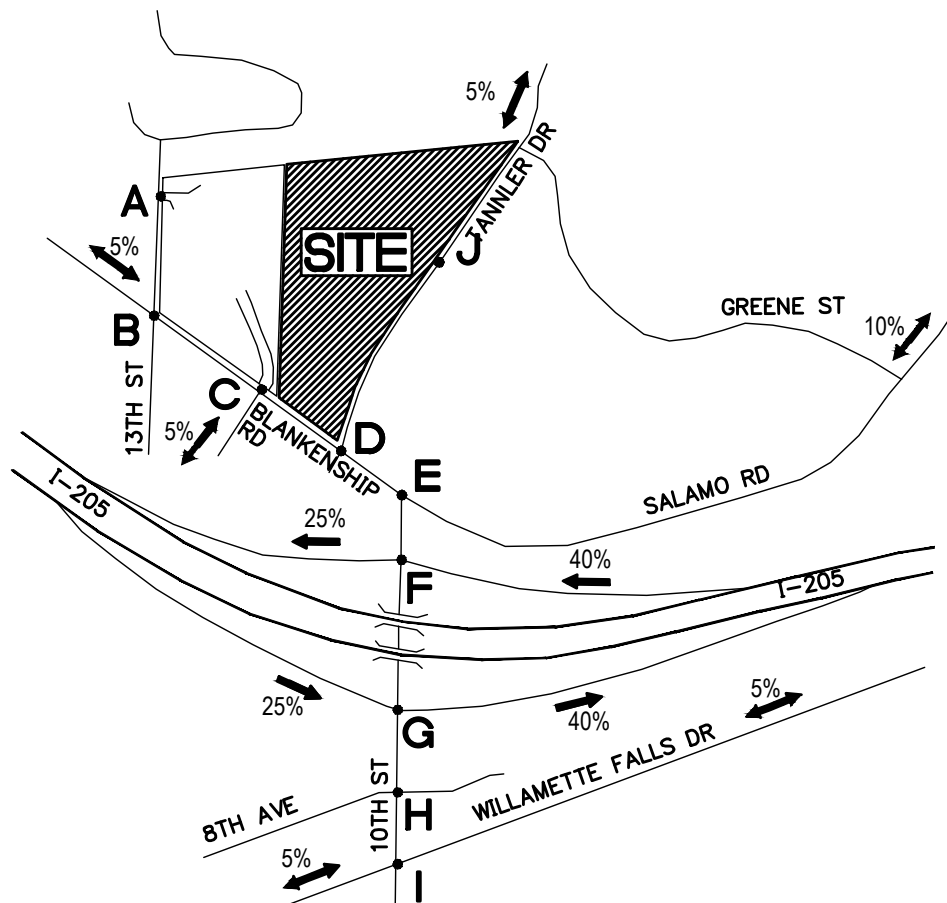
Brent Ahrend, PE
Senior Associate | Traffic Engineer

Enclosure(s): Trip Distribution
Assignment Figures

c: Marah Danielson - ODOT



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DATE: 03.27.2015

DRAWN BY: JTJ

CHECKED BY: BTA

JOB NO:
2130529.05

AM PROJECT DISTRIBUTION
AND TRAFFIC ASSIGNMENT

TANNER DRIVE APARTMENTS
WEST LINN

FIGURE

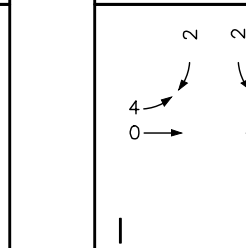
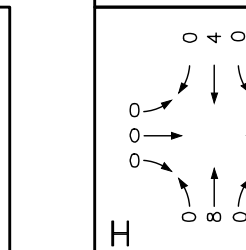
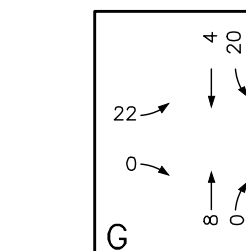
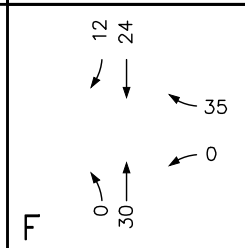
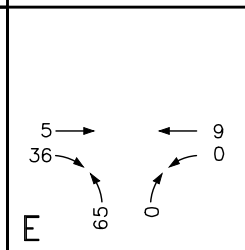
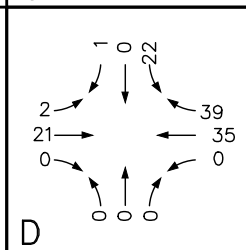
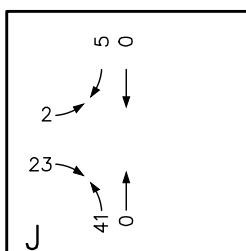
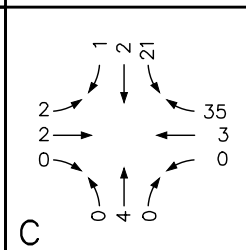
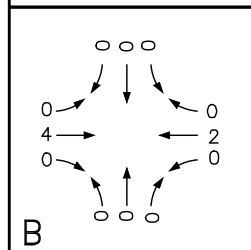
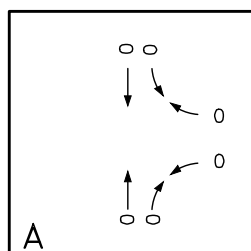
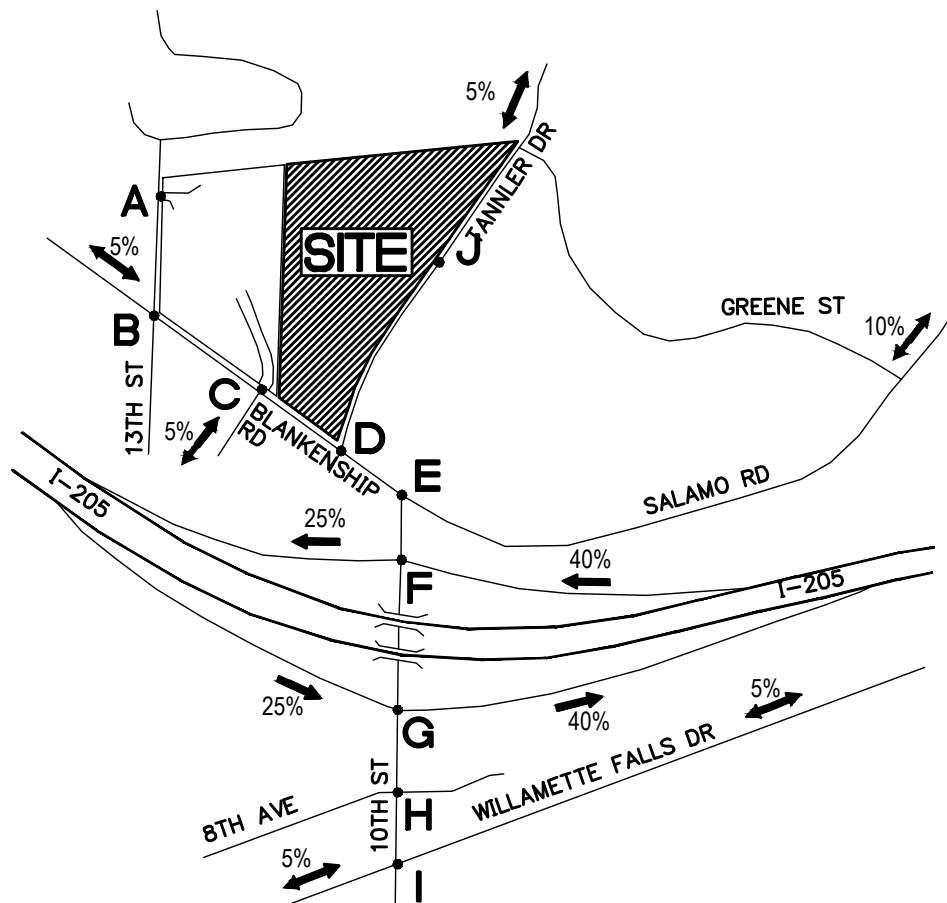
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8/26/15 PC Meeting



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MACKENZIE

DATE: 03.27.2015
DRAWN BY: JTJ
CHECKED BY: BTA
JOB NO:
2130529.05

PM PROJECT DISTRIBUTION
AND TRAFFIC ASSIGNMENT

TANNER DRIVE APARTMENTS
WEST LINN

FIGURE

B

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8/26/15 PC Meeting

From: [Brent Ahrend](#)
To: [Janet T. Jones](#)
Subject: FW: Tannler Drive Apartments - TIA Scoping
Date: Thursday, April 09, 2015 4:12:25 PM
Attachments: [image001.png](#)
[image0a3688.PNG](#)
[image2c2b33.PNG](#)
[Transportation-Project-Updates.pdf](#)

From: Le, Khoi [<mailto:kle@westlinnoregon.gov>]
Sent: Wednesday, April 08, 2015 4:12 PM
To: 'BAUMGARTNER Douglas G'; Brent Ahrend
Cc: DANIELSON Marah B
Subject: RE: Tannler Drive Apartments - TIA Scoping

Hi Brent,

As I mentioned over the phone yesterday, Lance and I have reviewed the proposed scope work and following are our comments:

- Scope of TIA
 - We prefer the TIA to be done in accordance with ODOT guideline in the link below.
 - http://www.oregon.gov/odot/td/tp_res/docs/reports/bestpracticesfortraffic.pdf
- Trip Generation
 - For the commercial area, please use the land use type that generates most traffic permitted in this zone. "Day Care (565) would be an appropriate type for the analysis.
- Study Area
 - Please include 8th Ave and 10th St
- Traffic Impact Analysis
 - Please include 2030 Future Conditions per Current TSP.
 - Please include Bike/Pedestrian Safety and Crossings/Access of identified corridors.

I also attached the most updated project list included as a part our recent approved Transportation SDC Fee Analysis for your review.

Please feel free to contact me if you have any questions or comments.

Khoi

Khoi Le
Civil Engineer II
22500 Salamo Rd.
West Linn, OR 97068

kle@westlinnoregon.gov

westlinnoregon.gov

Phone (503) 722-5517



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From: BAUMGARTNER Douglas G [<mailto:Douglas.G.BAUMGARTNER@odot.state.or.us>]
Sent: Tuesday, April 07, 2015 2:56 PM
To: 'Brent Ahrend'
Cc: DANIELSON Marah B; Le, Khoi
Subject: RE: Tannler Drive Apartments - TIA Scoping

Good morning Brent,

I have reviewed the proposed scope of work and I will not be requesting any changes or additions. I have also attached the ODOT signal timing sheets for the I-205 NB and SB ramp intersections with 10th Street. Please note that due to the close proximity of the Salamo/Blankenship intersection with the SB ramp these intersections operate as one signalized intersection for timing purposes. Please feel free to contact me if you have any further questions.

Douglas Baumgartner, P.E.
ODOT Region 1 Traffic Analyst
123 NW Flanders Street
Portland, OR 97209-4012
503.731.8225
FAX 503.731.8259

From: DANIELSON Marah B
Sent: Tuesday, March 31, 2015 11:49 AM
To: 'Brent Ahrend'; kle@westlinnoregon.gov
Cc: Rob Morgan (rmorgan@conam.com); Robinson, Michael C. (Perkins Coie); Mike Mahoney (mmahoney@conam.com); Janet T. Jones; TAYAR Abraham * Avi; BAUMGARTNER Douglas G
Subject: RE: Tannler Drive Apartments - TIA Scoping

Hi Brent,
Doug Baumgartner will be reviewing the TIA scope and study.
Thanks for sending this one my way.

Marah Danielson, Senior Planner
ODOT R1 Development Review Planning Lead
(503) 731-8258
marah.b.danielson@odot.state.or.us

From: Brent Ahrend [<mailto:BAhrend@mcknze.com>]
Sent: Tuesday, March 31, 2015 9:21 AM
To: kle@westlinnoregon.gov; DANIELSON Marah B
Cc: Rob Morgan (rmorgan@conam.com); Robinson, Michael C. (Perkins Coie); Mike Mahoney

(mmahoney@conam.com); Janet T. Jones
Subject: Tannler Drive Apartments - TIA Scoping

Khoi,

As we discussed, Mackenzie is providing this TIA Scoping letter for your review and approval of the study area and study assumptions. Please contact us with any questions you may have.

I have copied Marah Danielson at ODOT, as ODOT staff will be involved in the review of the analysis due to proximity and impacts on the 10th Street interchange.

Brent T. Ahrend, PE
Senior Associate | Asst Department Head – Transportation Planning



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From: [Brent Ahrend](#)
To: [Janet T. Jones](#)
Subject: FW: Tannler Drive Apartments - TIA Scoping
Date: Thursday, April 09, 2015 4:12:39 PM
Attachments: [image001.png](#)
[I-205 NB @ 10th.pdf](#)
[I-205 SB @ 10th-Salamo-Blankenship.pdf](#)

From: BAUMGARTNER Douglas G [mailto:Douglas.G.BAUMGARTNER@odot.state.or.us]
Sent: Tuesday, April 07, 2015 2:56 PM
To: Brent Ahrend
Cc: DANIELSON Marah B; kle@westlinnoregon.gov
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To: 'Brent Ahrend'; kle@westlinnoregon.gov
Cc: Rob Morgan (rmorgan@conam.com); Robinson, Michael C. (Perkins Coie); Mike Mahoney (mmahoney@conam.com); Janet T. Jones; TAYAR Abraham * Avi; BAUMGARTNER Douglas G
Subject: RE: Tannler Drive Apartments - TIA Scoping

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Thanks for sending this one my way.

Marah Danielson, Senior Planner
ODOT R1 Development Review Planning Lead
(503) 731-8258
marah.b.danielson@odot.state.or.us

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Sent: Tuesday, March 31, 2015 9:21 AM
To: kle@westlinnoregon.gov; DANIELSON Marah B
Cc: Rob Morgan (rmorgan@conam.com); Robinson, Michael C. (Perkins Coie); Mike Mahoney (mmahoney@conam.com); Janet T. Jones

Subject: Tannler Drive Apartments - TIA Scoping

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As we discussed, Mackenzie is providing this TIA Scoping letter for your review and approval of the study area and study assumptions. Please contact us with any questions you may have.

I have copied Marah Danielson at ODOT, as ODOT staff will be involved in the review of the analysis due to proximity and impacts on the 10th Street interchange.

Brent T. Ahrend, PE

Senior Associate | Asst Department Head – Transportation Planning



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Janet T. Jones

From: Janet T. Jones
Sent: Tuesday, June 30, 2015 10:37 AM
To: 'Brian Copeland'
Cc: Rob Morgan (rmorgan@conam.com); Mike Mahoney (mmahoney@conam.com); Le, Khoi; Robinson, Michael C. (Perkins Coie); Brent Ahrend
Subject: RE: Tannler Apartments TIA

Brian,

Thank you for reviewing the TIA assumptions with us yesterday afternoon. Based on your previous email and our discussion yesterday, we are establishing the following assumptions moving forward:

Trip Generation: Specialty Retail Center (826) does not seem appropriate for the commercial space, as the commercial trip generation could be much higher, depending on the actual use. I would agree with the City's email (from Khoi Le on April 8, 2015) that the Day Care land use (565) seems more reasonable for the commercial space.

Trip generation for the commercial space will be calculated using the Day Care Center (LUC 565) land use based on GFA. This represents the highest trip rate of the allowed uses in the zone. Therefore, the trip impacts of any allowed uses would be covered by the analysis.

Trip Distribution: While the distribution shown in the scoping letter seems reasonable, please provide a source for where these numbers come from (TSP, Metro model, etc). Also, please provide back-up for using the same distribution for both AM and PM.

We have requested TAZ select zone trips for 2010 and 2040 from Metro and expect to receive those sometime this week. Separate distributions have been requested for household and employment uses. We will confirm our assumed trip distribution with the results from the select zone modeling output.

Study Area: Please include 8th Avenue/10th St as a study intersection. I see you have obtained data here so it sounds like you are already planning to include this intersection.

The 10th Street/8th Avenue intersection will be included in the study, and we will note this intersection has been addressed in other analyses and the TSP update currently underway. This intersection currently operates below standards and will continue to do so after the project is developed. The Tannler Apartments will only add through trips to this intersection, and therefore will not contribute to its deficiency.

Traffic Impact Analysis: Please include future (2030) analysis per adopted TSP. Also include discussion of bike, ped and transit facilities/connections/access in the study area.

It was confirmed with Khoi back in April 10th, 2015 that a 2030 analysis would not be needed for this TIA. We will not be analyzing 2030 conditions. Bicycle, pedestrian and transit facilities will be discussed in the report as we typically do. Connections/accesses in the study area will also be discussed.

Background Traffic Growth Rate: In Brent Ahrend's email dated 6/5/15, he requested to use a 1%/year growth rate for traffic. I feel this is too low and not reasonable. Just because historic data does not show growth between 2006 and 2015 does not mean there will not be growth future growth. I would suggest either using growth rates from the City's adopted TSP, the City's current/ongoing TSP (if future volumes have been developed at this point), or the current Metro model to come up with a reasonable growth rate.

The current City of West Linn Transportation System Plan presents a traffic growth rate of approximately 1 to 2% per year from 2005 to 2030. The TSP Update Draft Tech Memo 7 (found on the City's website) currently shows an annual growth rate of 0.8% in population, 0.8% in households and 2% in employment. We have asked the City's

consultant on the TSP, Susan Wright of Kittelson to confirm the growth rate. We noted the metro model shows growth of up to 1% per year on the study area roadways. To clarify, our build-out year is 2016 per our scoping letter (we had discussed 2017 yesterday, but that is not the case). We anticipate using 2% per year as a conservative measure, which will result in a 2% increase from existing volumes for the 2016 build-out year.

Synchro Model: Signal plans show phase 7 as lagging, but ODOT timing forms do not appear to show phase 7 as lagging. Please verify and update as necessary. Timing forms should overrule signal plans.

We will confirm the correct lead/lag configuration for phase 7. As we discussed yesterday, Synchro seems to limit us to modeling phase 7 as a lagging phase. If the operation is in fact a leading phase, and we are not able to model it correctly, we will note any expected differences in capacity and queuing. As discussed, the capacity results would likely not change, but queuing could be slightly different.

Thanks again,

Janet T. Jones, EIT
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From: Brian Copeland [<mailto:bkc@dksassociates.com>]

Sent: Monday, June 29, 2015 10:25 AM

To: Janet T. Jones

Cc: Rob Morgan (rmorgan@conam.com); Mike Mahoney (mmahoney@conam.com); Le, Khoi; Robinson, Michael C. (Perkins Coie); Brent Ahrend

Subject: Re: Tannler Apartments TIA

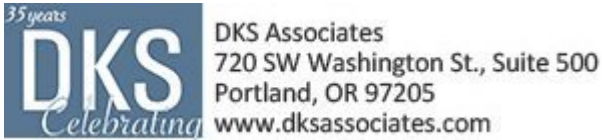
Janet/Brent -

We have reviewed your existing PM peak Synchro file. We only have one comment (attached). Please let me know if you have any questions.

Brian

Brian K. Copeland, P.E., PTOE

Ph: 503-243-3500 | Direct: 503-972-1240 | Cell: 503-753-8992 | Email: bkc@dksassociates.com



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On Fri, Jun 26, 2015 at 3:30 PM, Brian Copeland <bkc@dksassociates.com> wrote:

Hi Janet -

The following are preliminary comments based on my review of your scoping letter assumptions and other material provided to date. I will not have time today to finish my review of the Synchro files, but will do that Monday.

Trip Generation: Specialty Retail Center (826) does not seem appropriate for the commercial space, as the commercial trip generation could be much higher, depending on the actual use. I would agree with the City's email (from Khoi Le on April 8, 2015) that the Day Care land use (565) seems more reasonable for the commercial space.

Trip Distribution: While the distribution shown in the scoping letter seems reasonable, please provide a source for where these numbers come from (TSP, Metro model, etc). Also, please provide back-up for using the same distribution for both AM and PM.

Study Area: Please include 8th Avenue/10th St as a study intersection. I see you have obtained data here so it sounds like you are already planning to include this intersection.

Traffic Impact Analysis: Please include future (2030) analysis per adopted TSP. Also include discussion of bike, ped and transit facilities/connections/access in the study area.

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Please let me know if you have any questions. I will provide any comments on the Synchro model by end of day Monday.

Brian

Brian K. Copeland, P.E., PTOE

Ph: 503-243-3500 | Direct: [503-972-1240](tel:503-972-1240) | Cell: [503-753-8992](tel:503-753-8992) | Email: bkc@dksassociates.com



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On Mon, Jun 22, 2015 at 7:55 AM, Janet T. Jones <JTJones@mcknze.com> wrote:

Brian,

Welcome to the team! We look forward to working with you on the Tannler Apartments TIA.

We are running on a tight schedule, and expect to complete a draft of the TIA by July 1st. We have confirmed some things with Khoi and Zach such as a 1% annual growth rate and the in-process projects to be used in our analysis. I am attaching to this email a zip folder containing scoping documents, such as our TIA scoping letter and emails, emails with Khoi regarding the annual growth rate, and the in-process project list that was shared with Khoi and Zach.

We are also attaching a zip folder containing the Existing PM Peak Hour Synchro model, the existing traffic counts that were used in that model, and the signal timing that was provided by ODOT. We would appreciate if you could look over the Synchro model, and confirm the assumptions we have made. The sooner we can confirm the assumptions made in the model, the sooner we can conduct the complete analysis!

We appreciate your effort. Please let us know if you have any questions regarding this project.

Janet T. Jones, EIT

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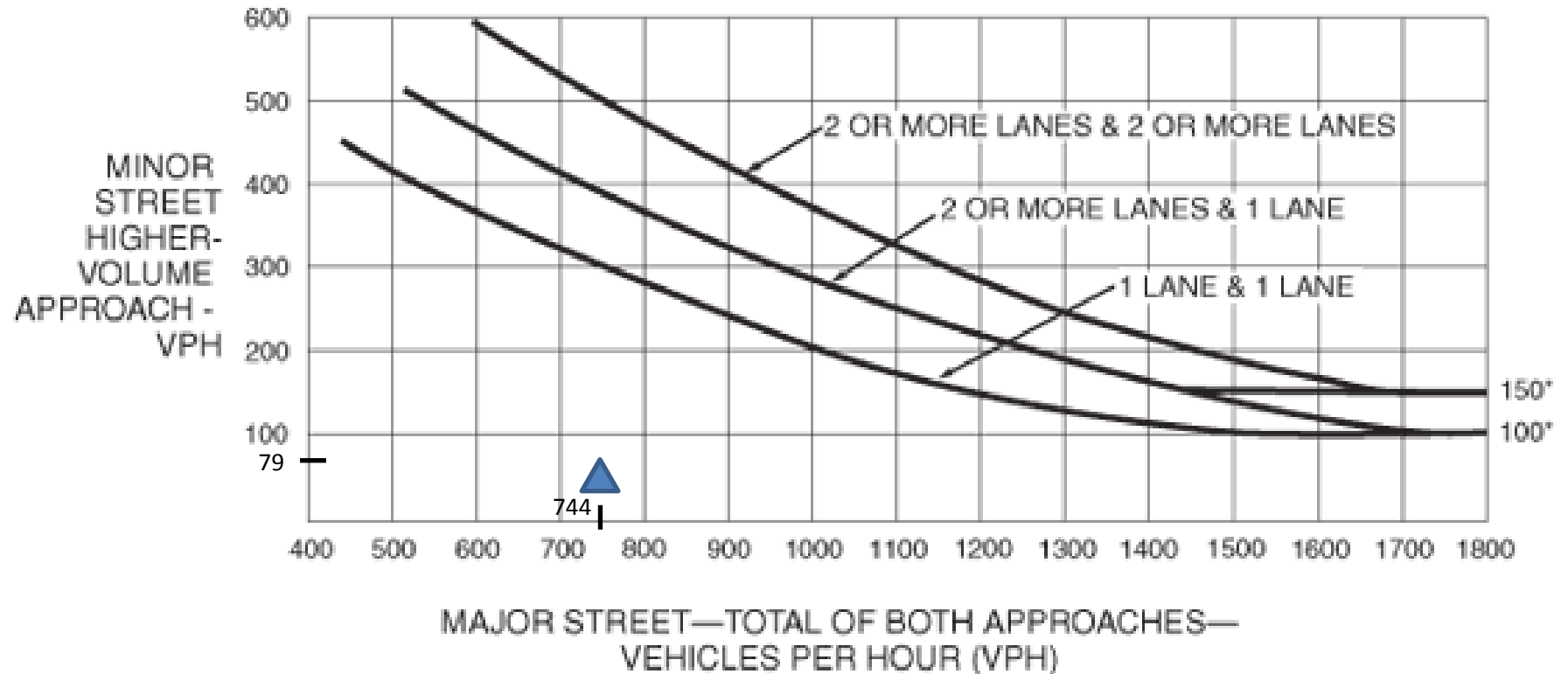
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Blankenship Road / Site Access
2017 Post-Development with Alternative 5
AM Peak Hour

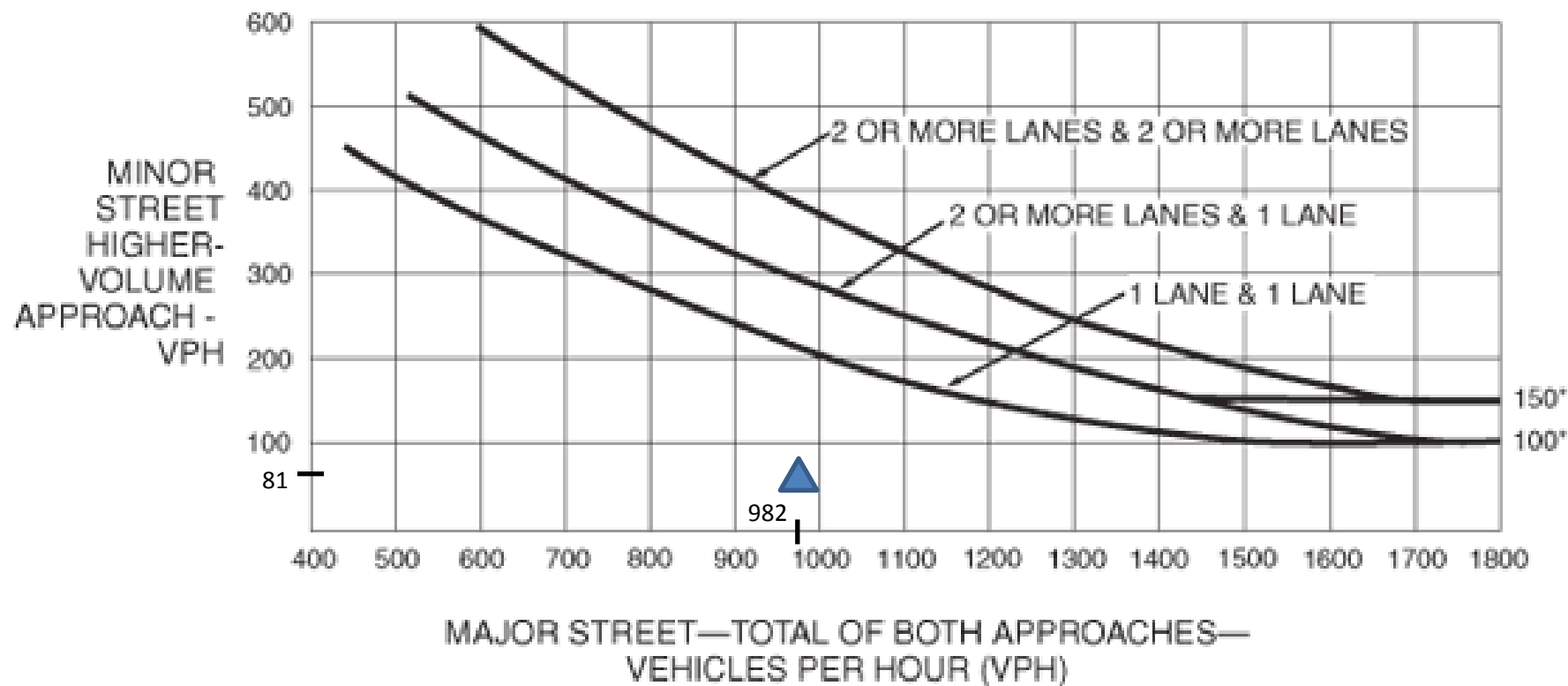
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Site Access
2017 Post-Development with Alternative 5
PM Peak Hour

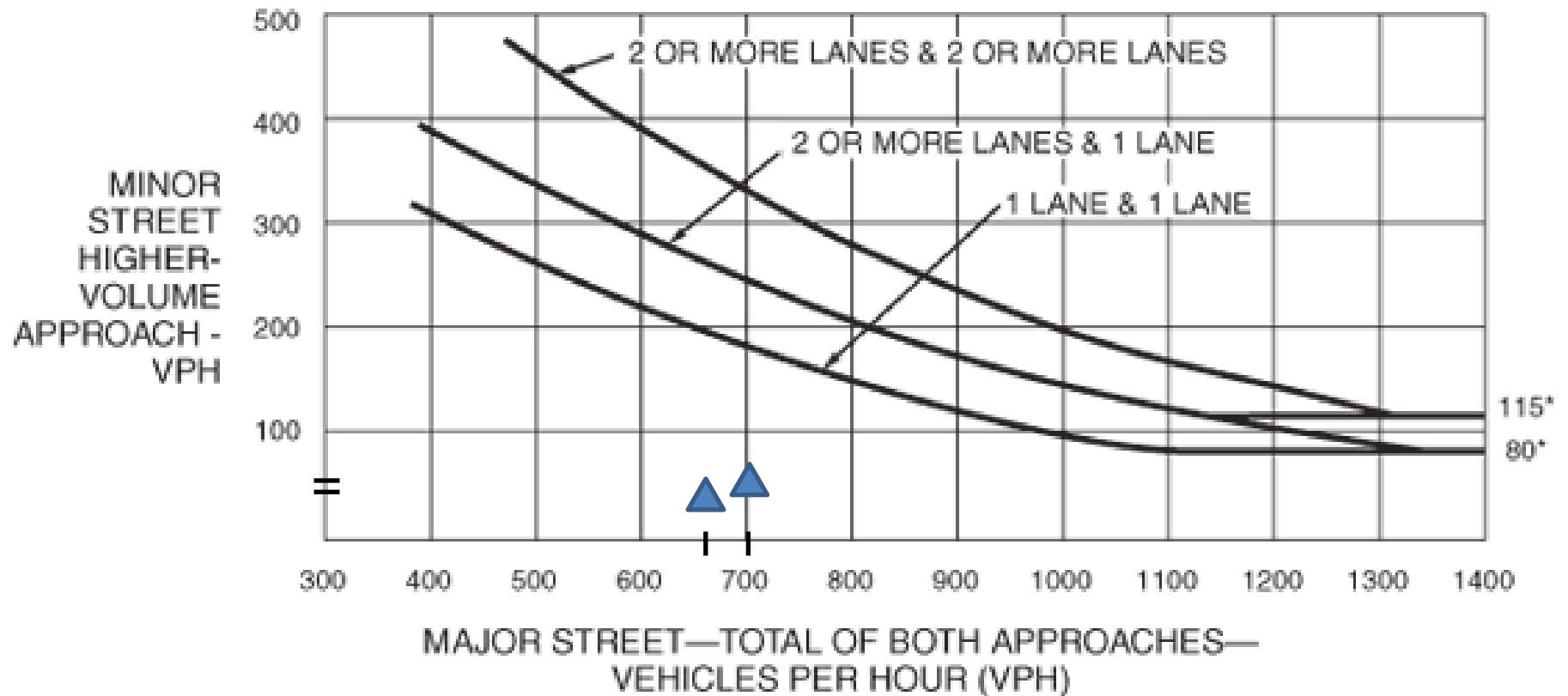
Figure 4C-3. Warrant 3, Peak Hour



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Blankenship Road / Site Access
2017 Post-Development with Alternative 5
AM Peak Hour

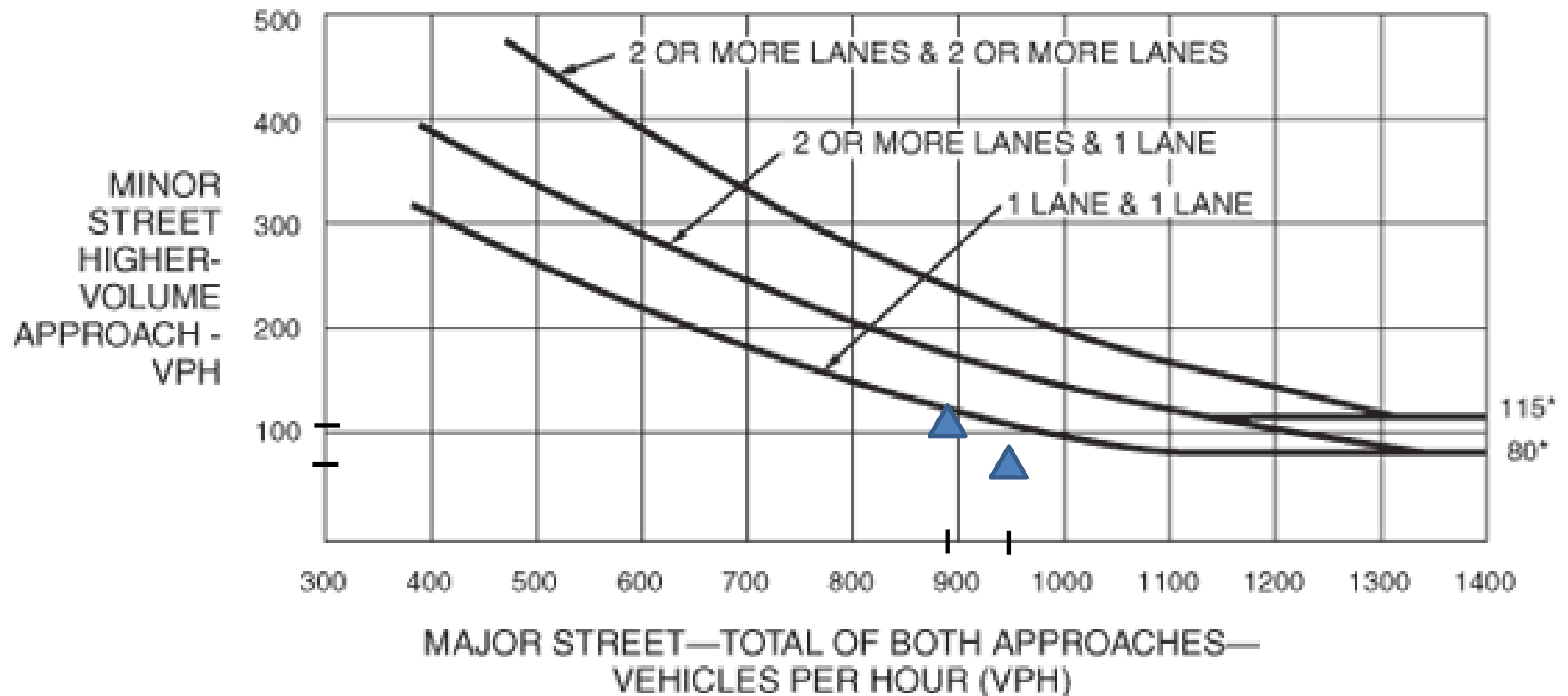
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Site Access
2017 Post-Development with Alternative 5
PM Peak Hour

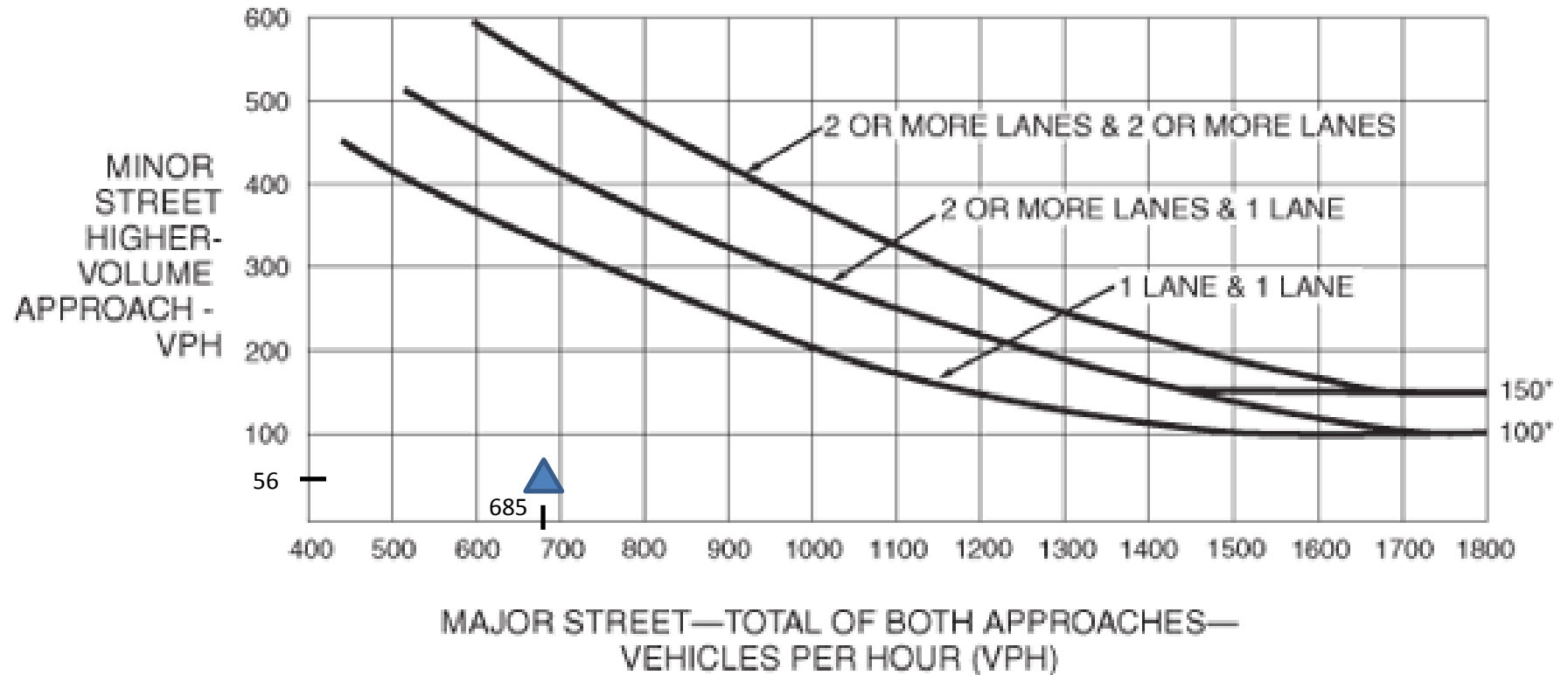
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Blankenship Road / Site Access
2017 Post-Development
AM Peak Hour

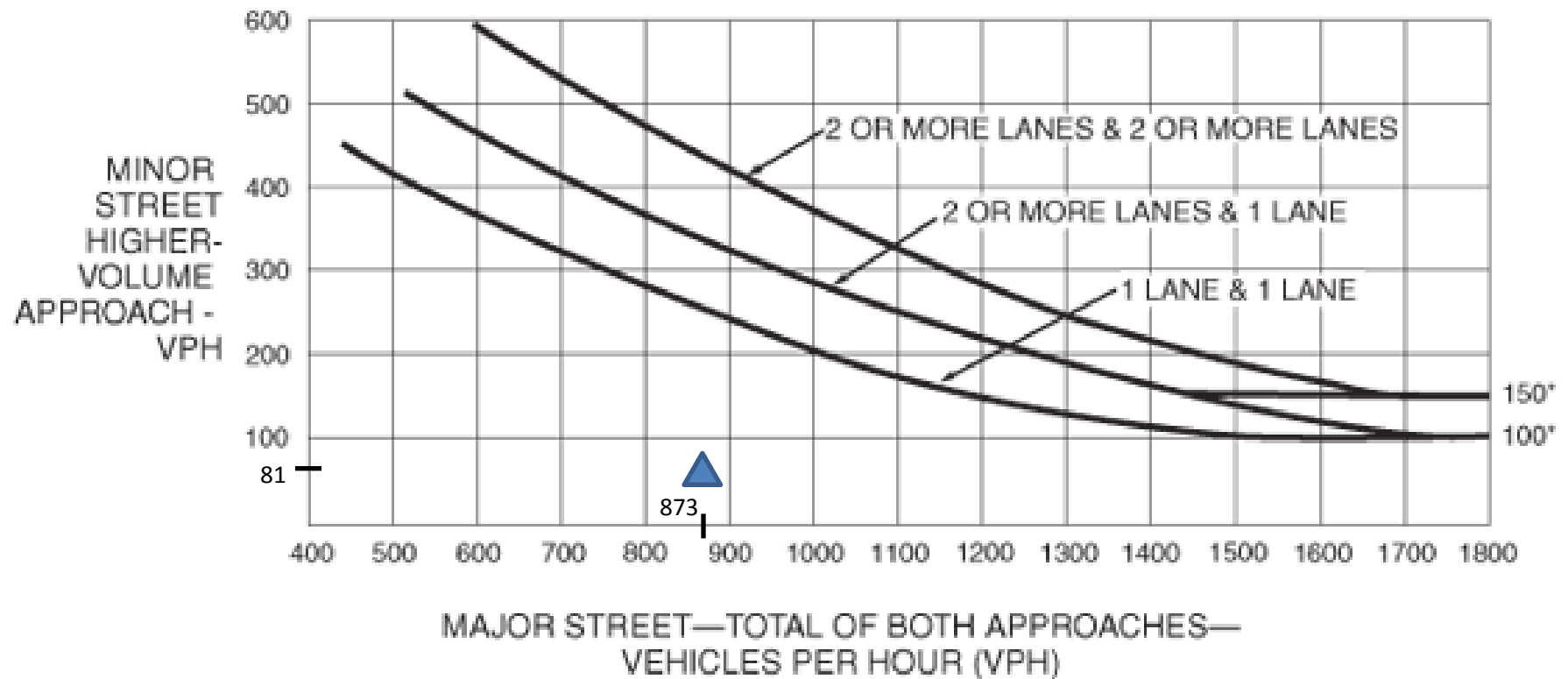
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Site Access
2017 Post-Development
PM Peak Hour

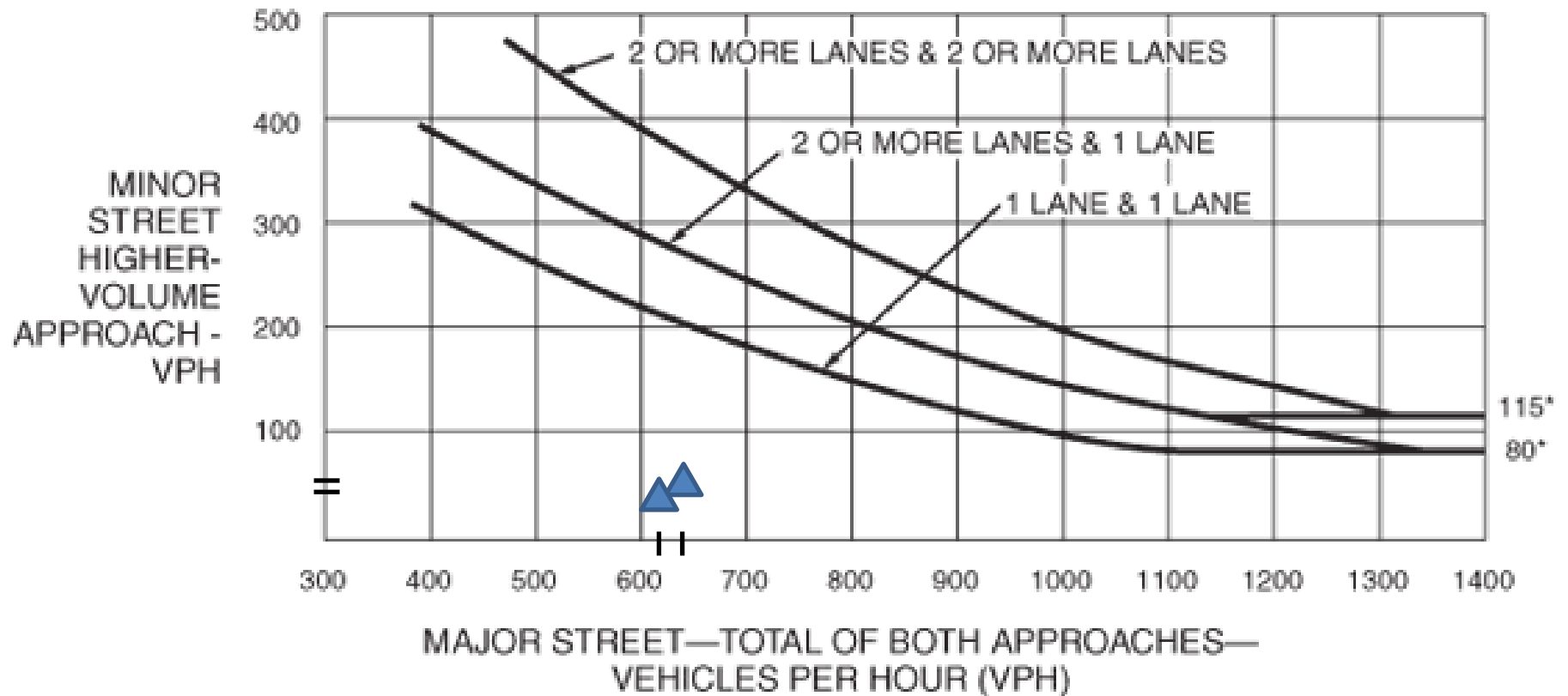
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Blankenship Road / Site Access
2017 Post-Development
AM Peak Hour

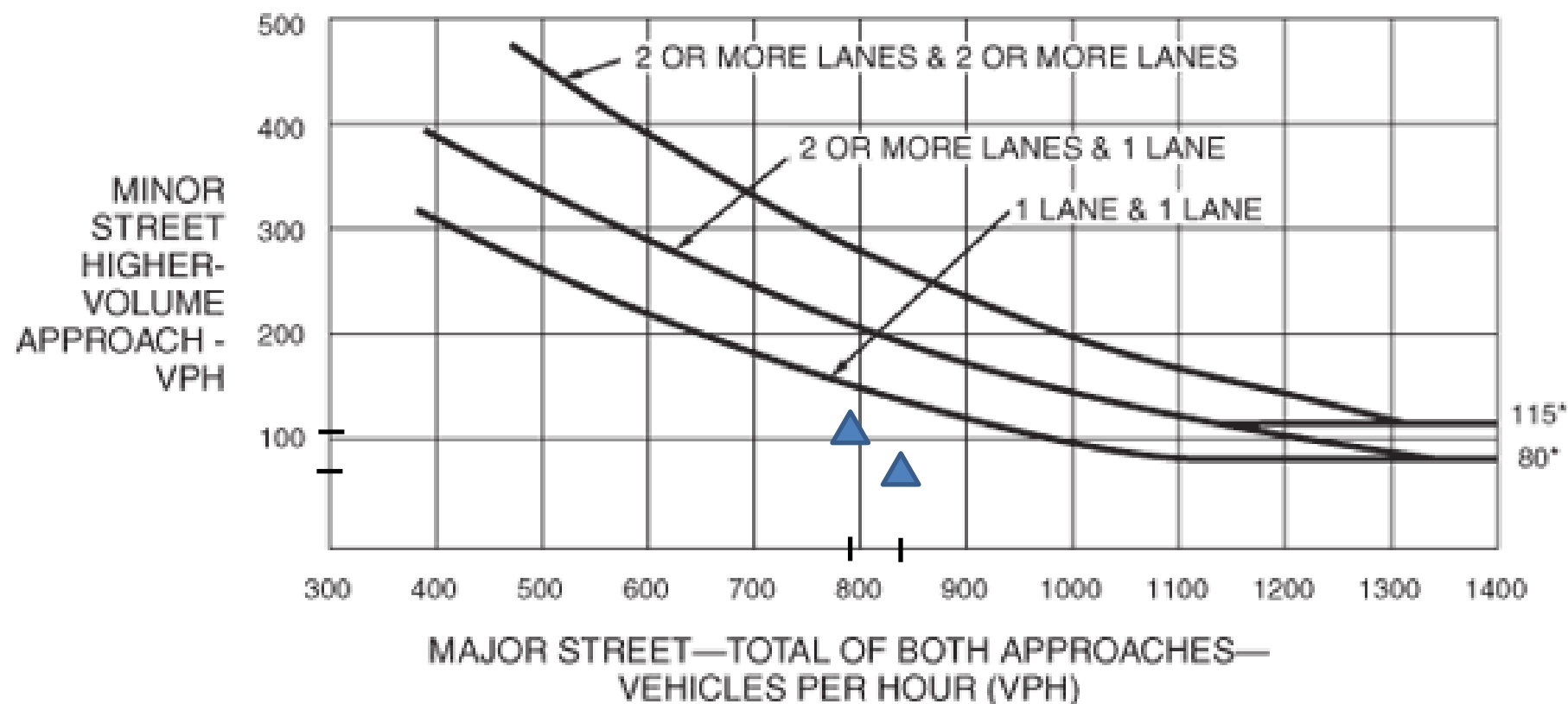
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Blankenship Road / Site Access
2017 Post-Development
PM Peak Hour

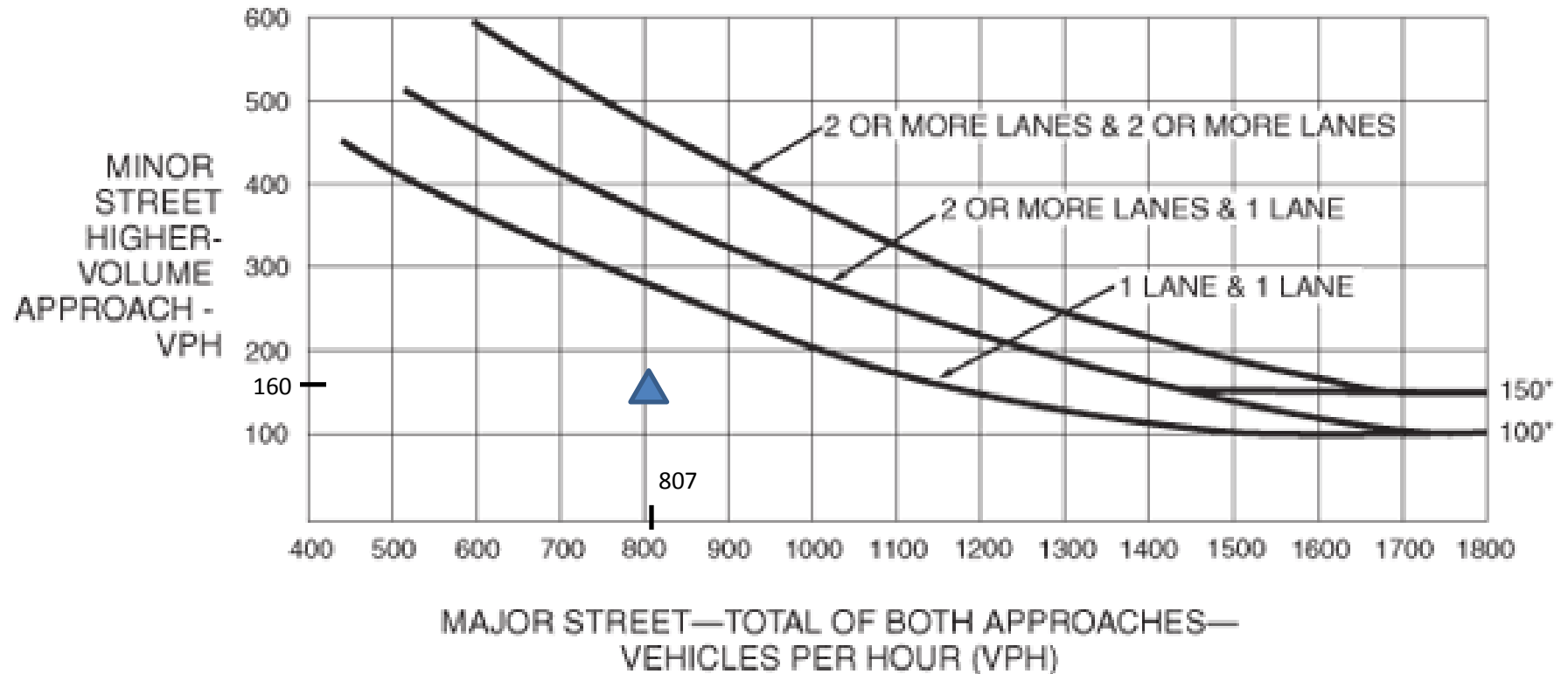
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Blankenship Road / Tannler Drive
2017 Post-Development
AM Peak Hour

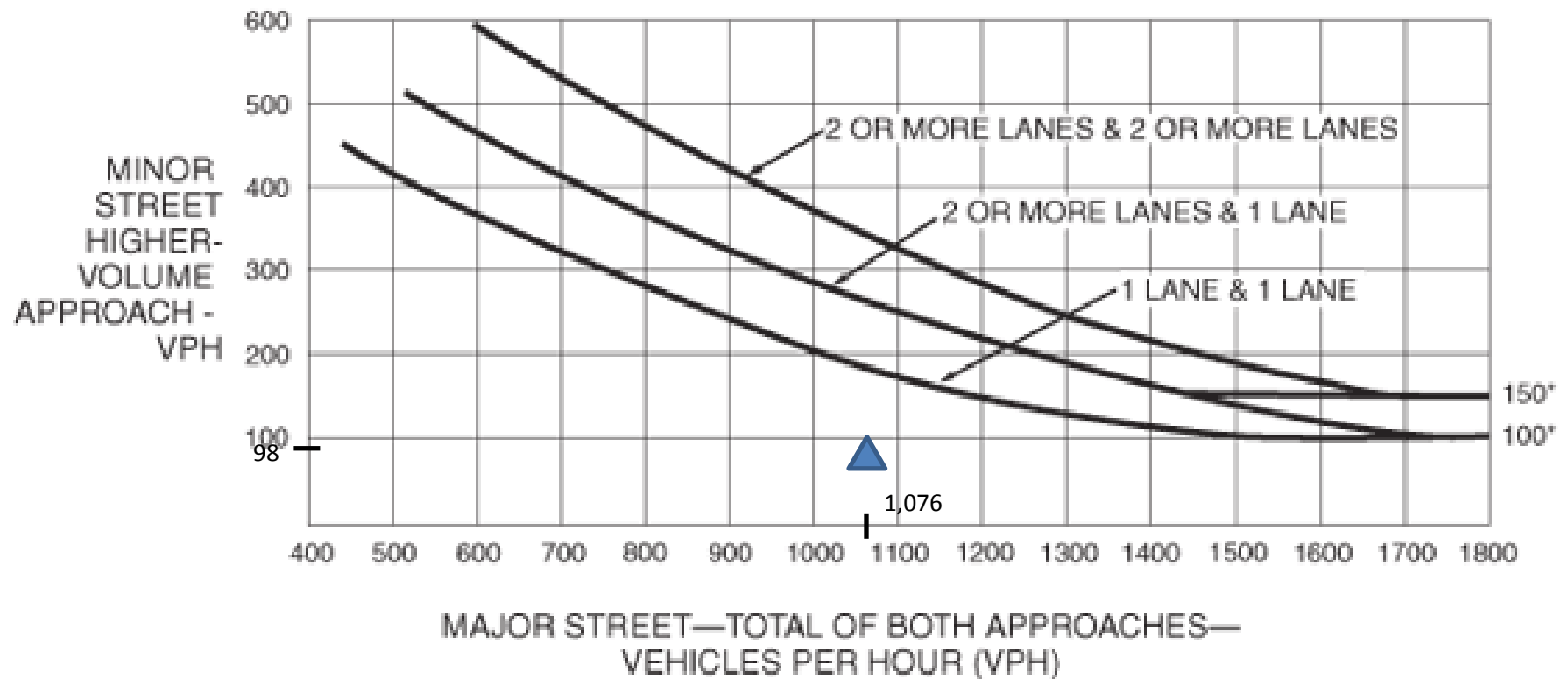
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*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Tannler Drive
2017 Post-Development with Mitigation
PM Peak Hour

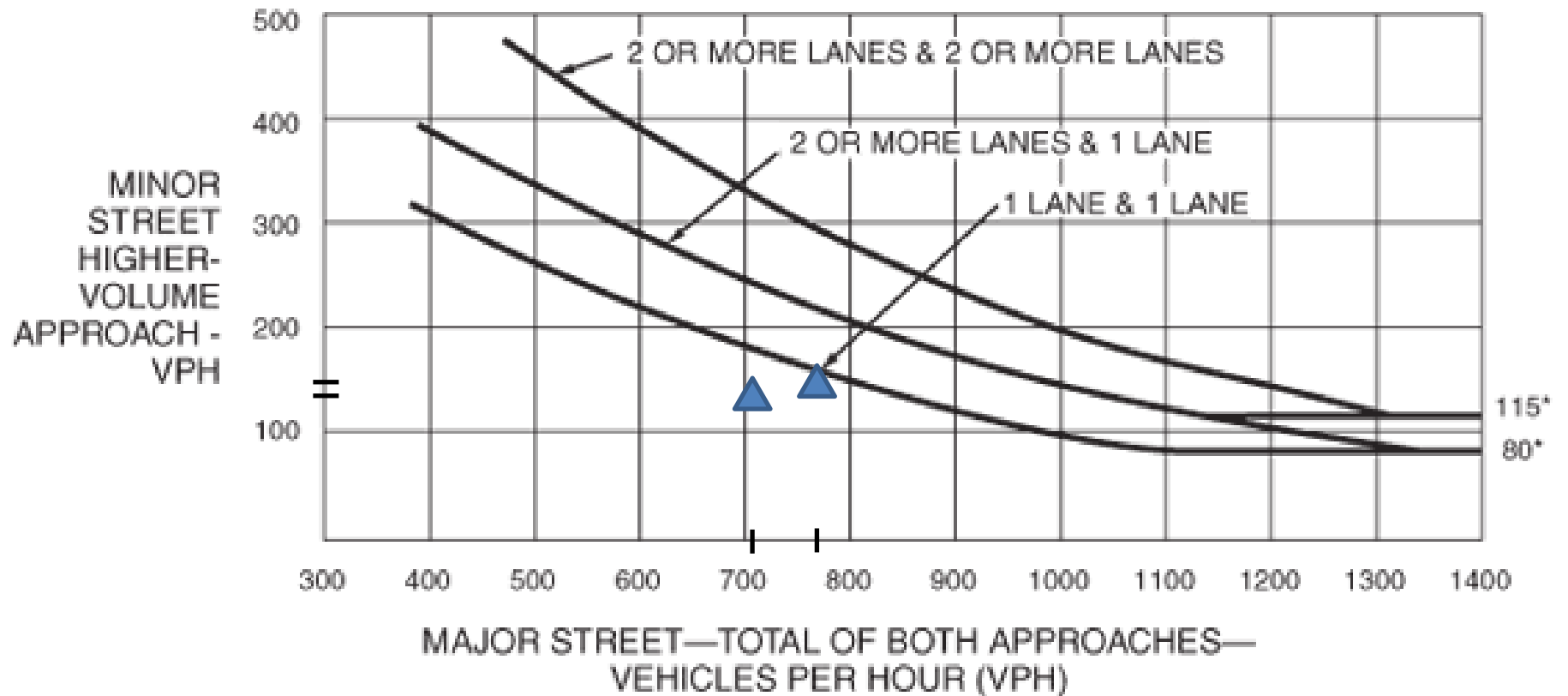
Figure 4C-3. Warrant 3, Peak Hour



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Blankenship Road / Tannler Drive
2017 Post-Development
AM Peak Hour

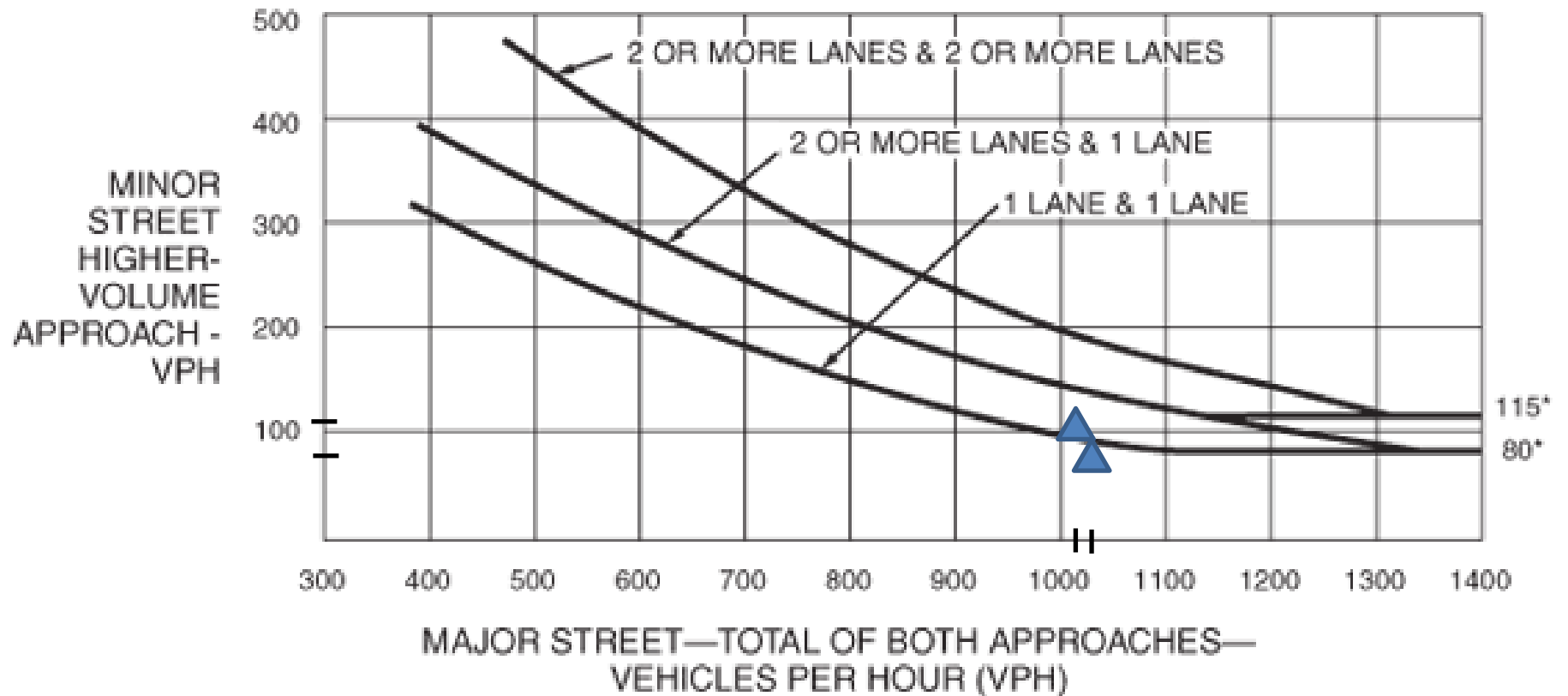
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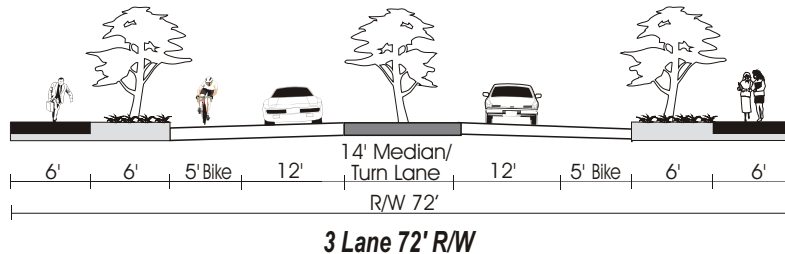
Blankenship Road / Tannler Drive
2017 Post-Development
PM Peak Hour

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

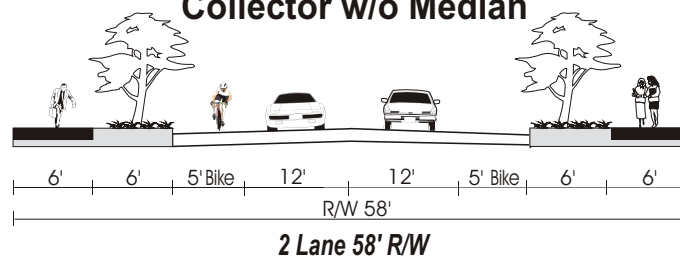


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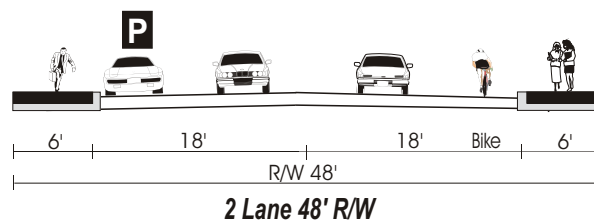
Collector with Median/Center Lane



Collector w/o Median



Collector Constrained



Standards Collector

Vehicle Lane Widths:	10-12 ft.
On Street Parking:	5-8 ft.
Bicycle Lanes:	4-6 ft. *
Sidewalks:	4-8 ft.
Landscape Strips:	0-6 ft.
Medians/Turn Lane Widths:	10-14 ft. **
Neighborhood Traffic Management:	Under Special Conditions

* Note: Bike lanes required where future traffic volumes > 3,000 ADT. When <3,000 ADT, 14' travel lanes will be provided.

** Note: Center turn lane maybe omitted where future traffic volumes < 5,000 ADT.

Green street variations of each cross section may be recommended by the City Engineer or Planning Director. These variations may include replacing the standard six foot planter strip with a five and a half to eight foot wide rain garden or swale, or substituting the concrete sidewalk for an asphalt pathway and in some cases providing such a pathway on only one side of the street.

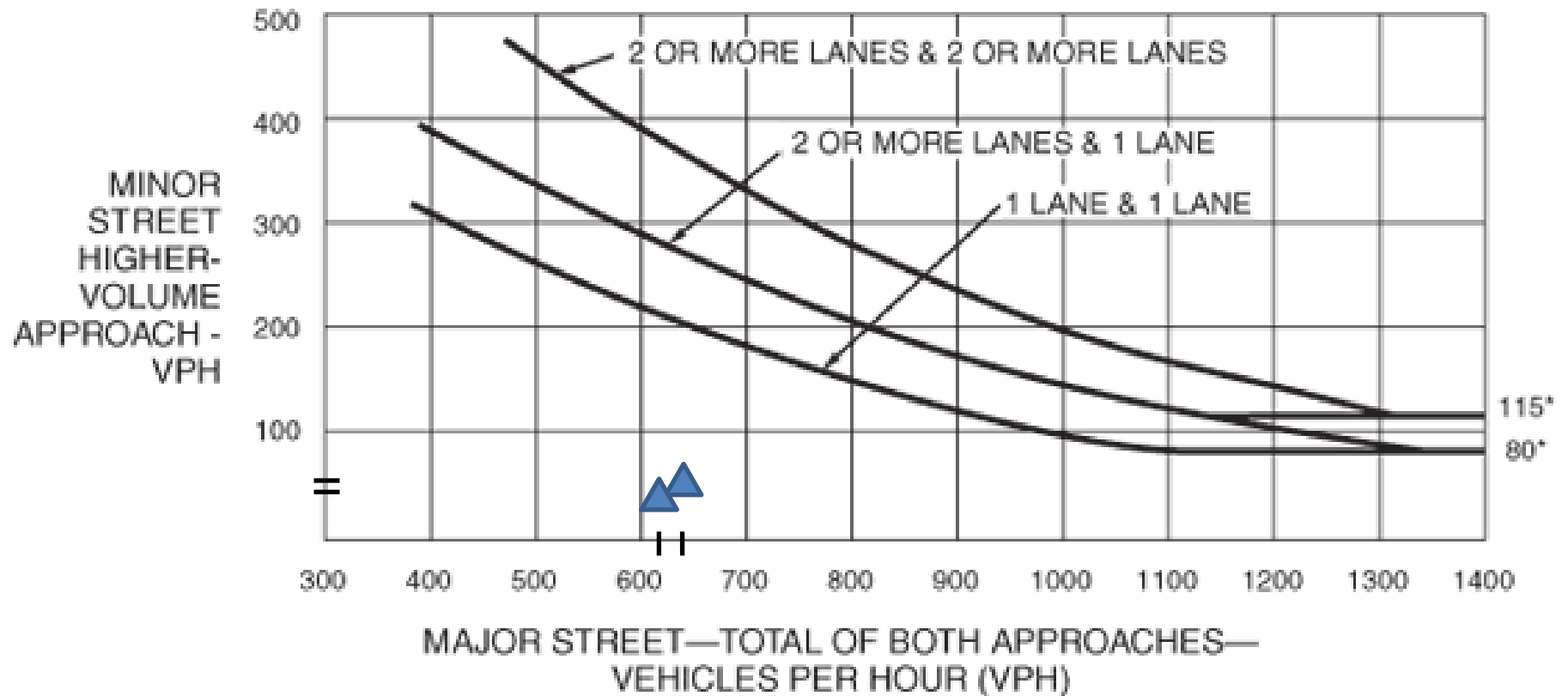
Legend

P - On-street Parking Lane

Figure 8-3
COLLECTOR
STREET CROSS SECTIONS

Blankenship Road / Site Access
2017 Post-Development
AM Peak Hour

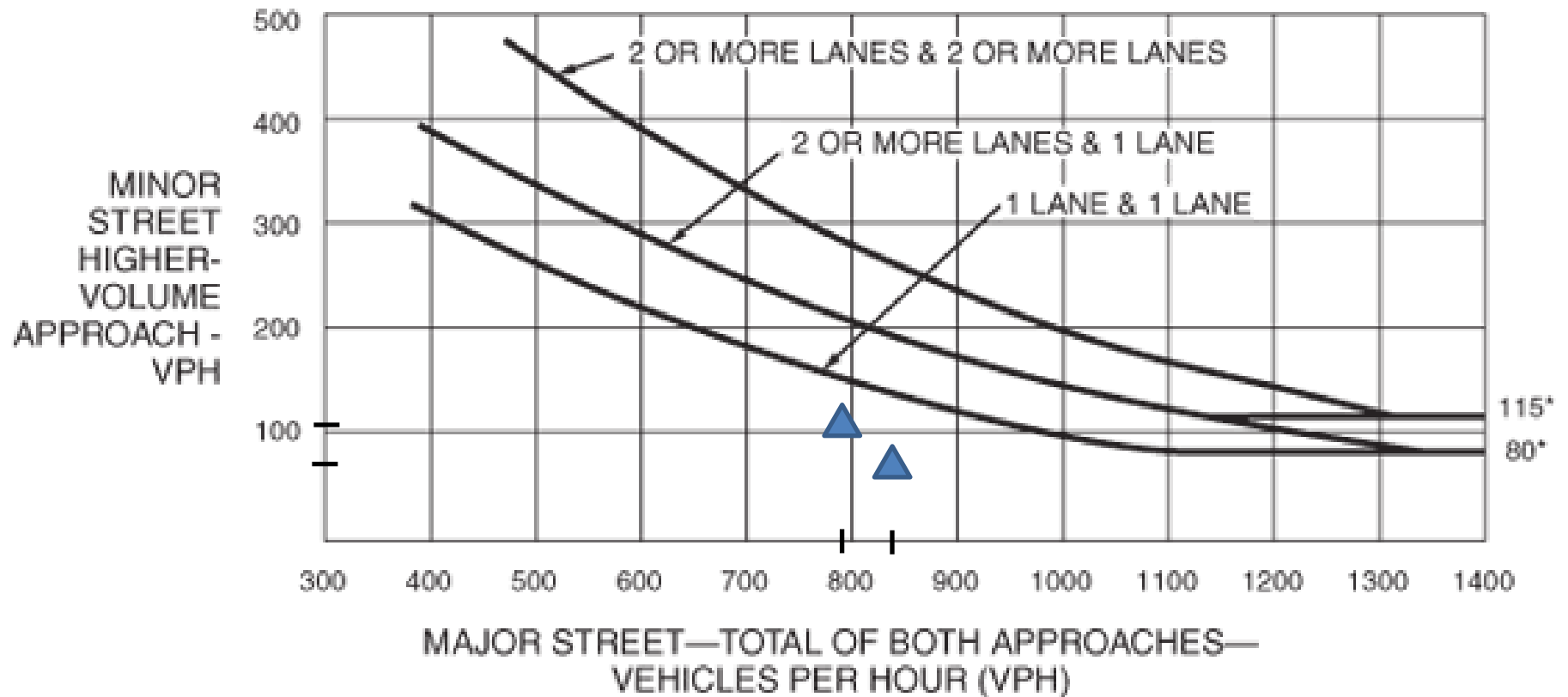
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Site Access
2017 Post-Development
PM Peak Hour

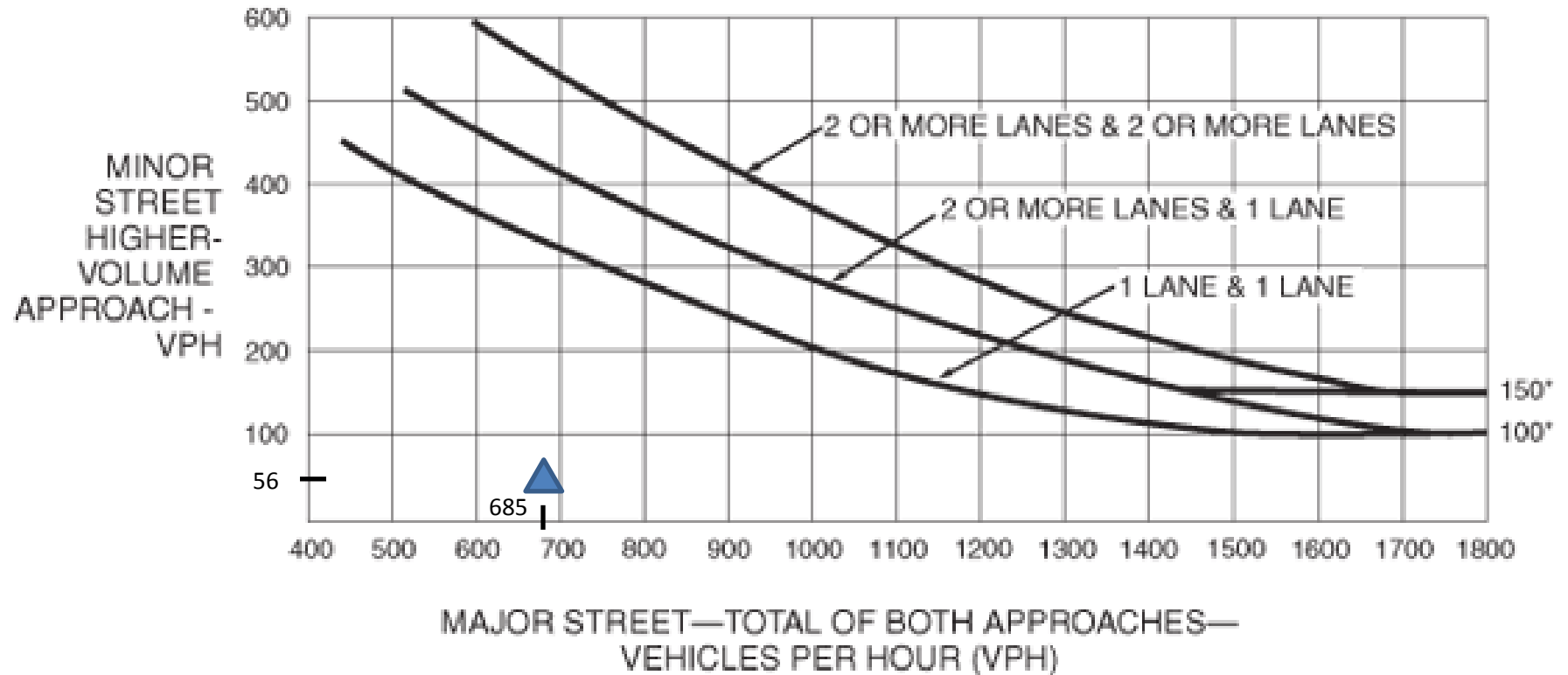
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Site Access
2017 Post-Development
AM Peak Hour

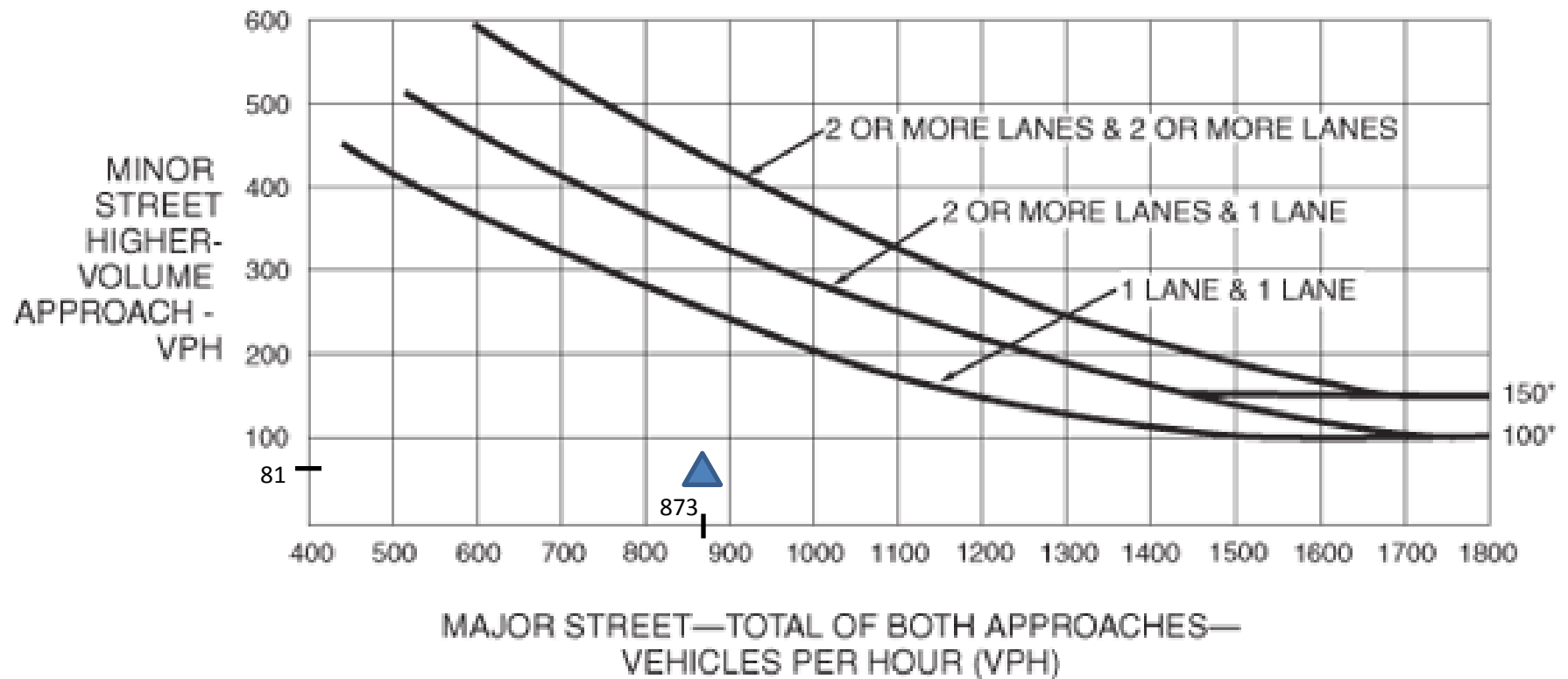
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Site Access
2017 Post-Development
PM Peak Hour

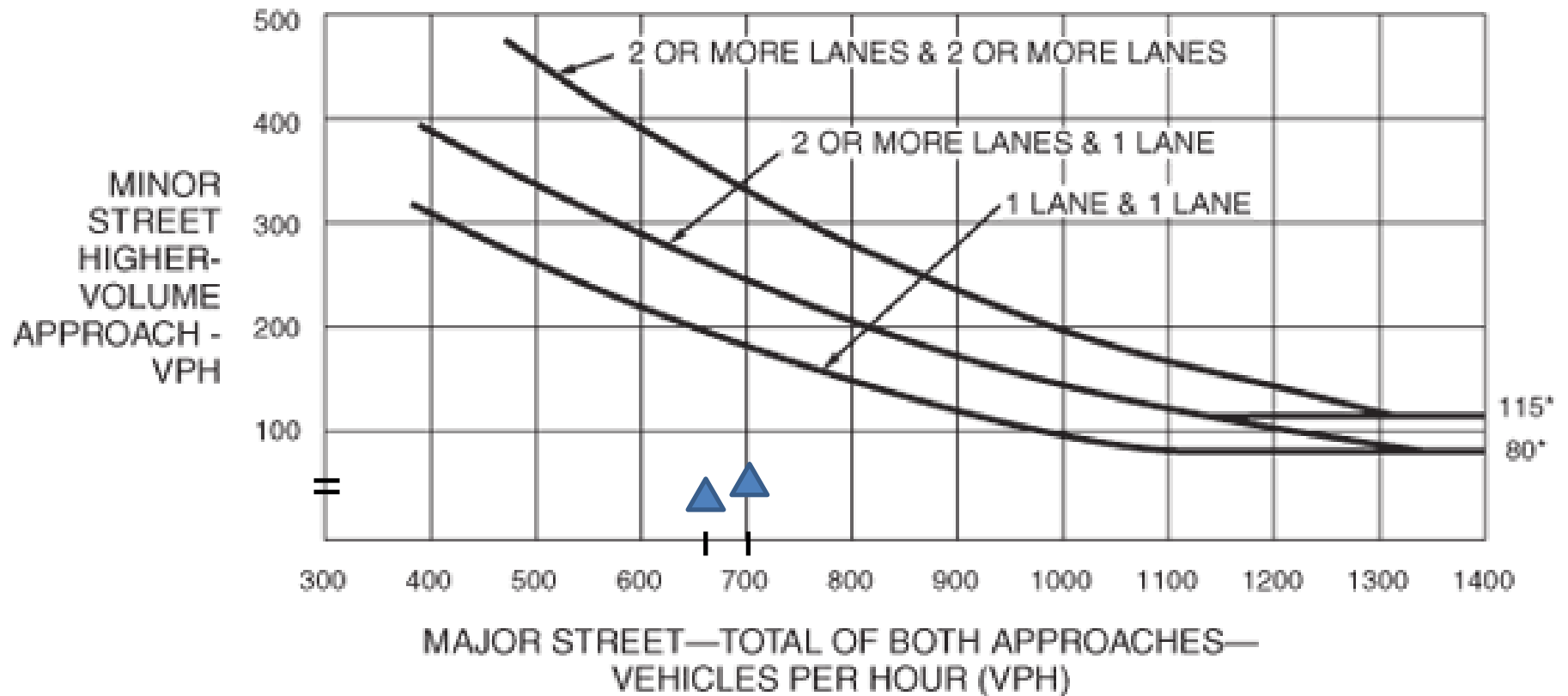
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Site Access
2017 Post-Development with Alternative 5
AM Peak Hour

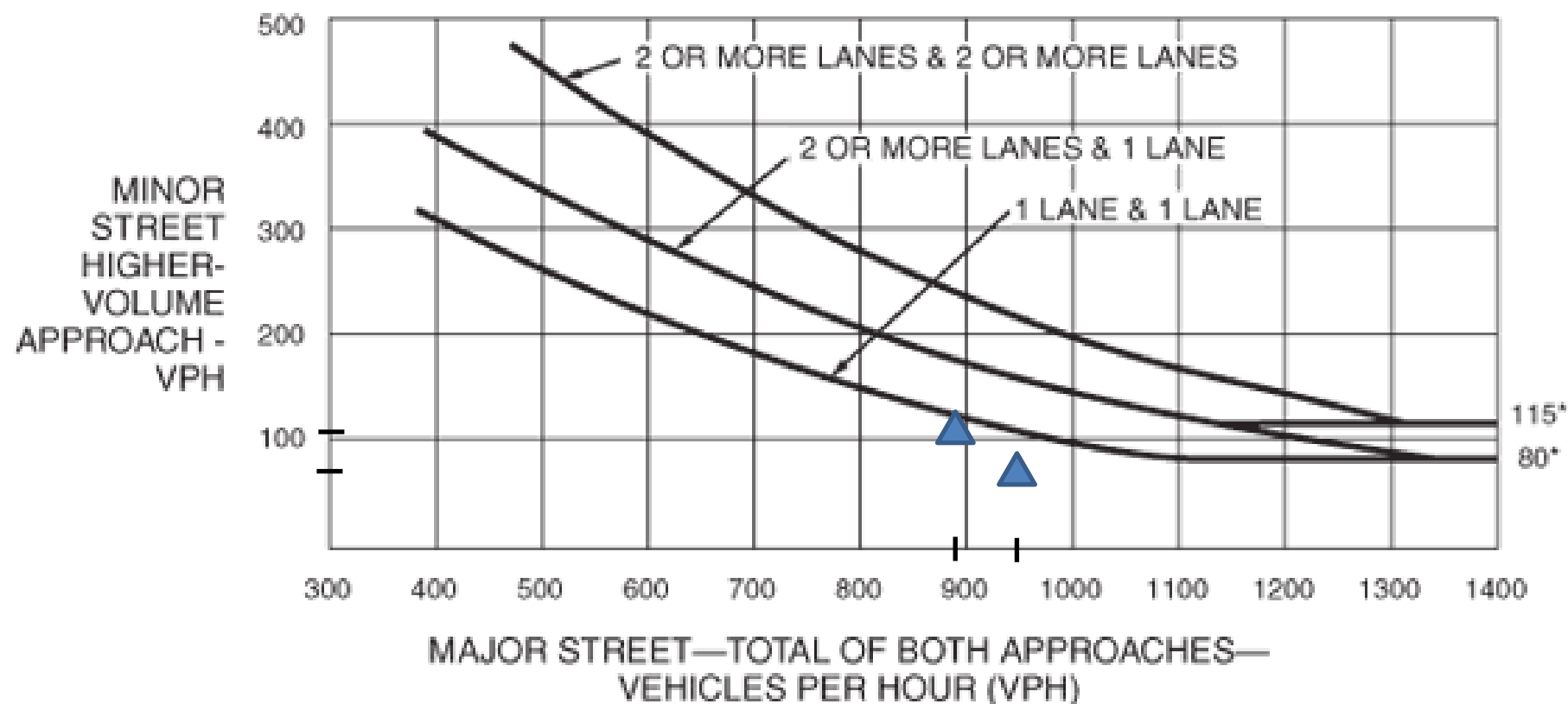
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



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Blankenship Road / Site Access
2017 Post-Development with Alternative 5
PM Peak Hour

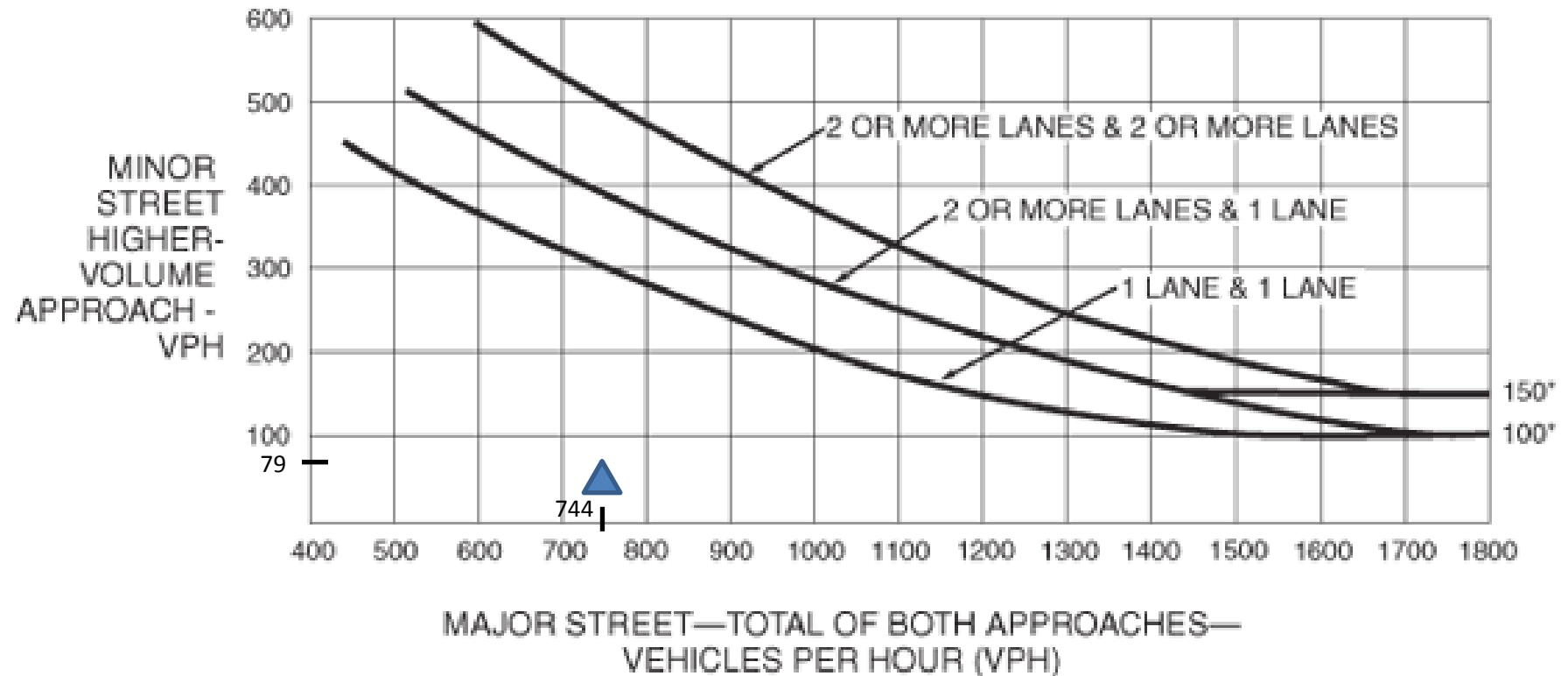
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Site Access
2017 Post-Development with Alternative 5
AM Peak Hour

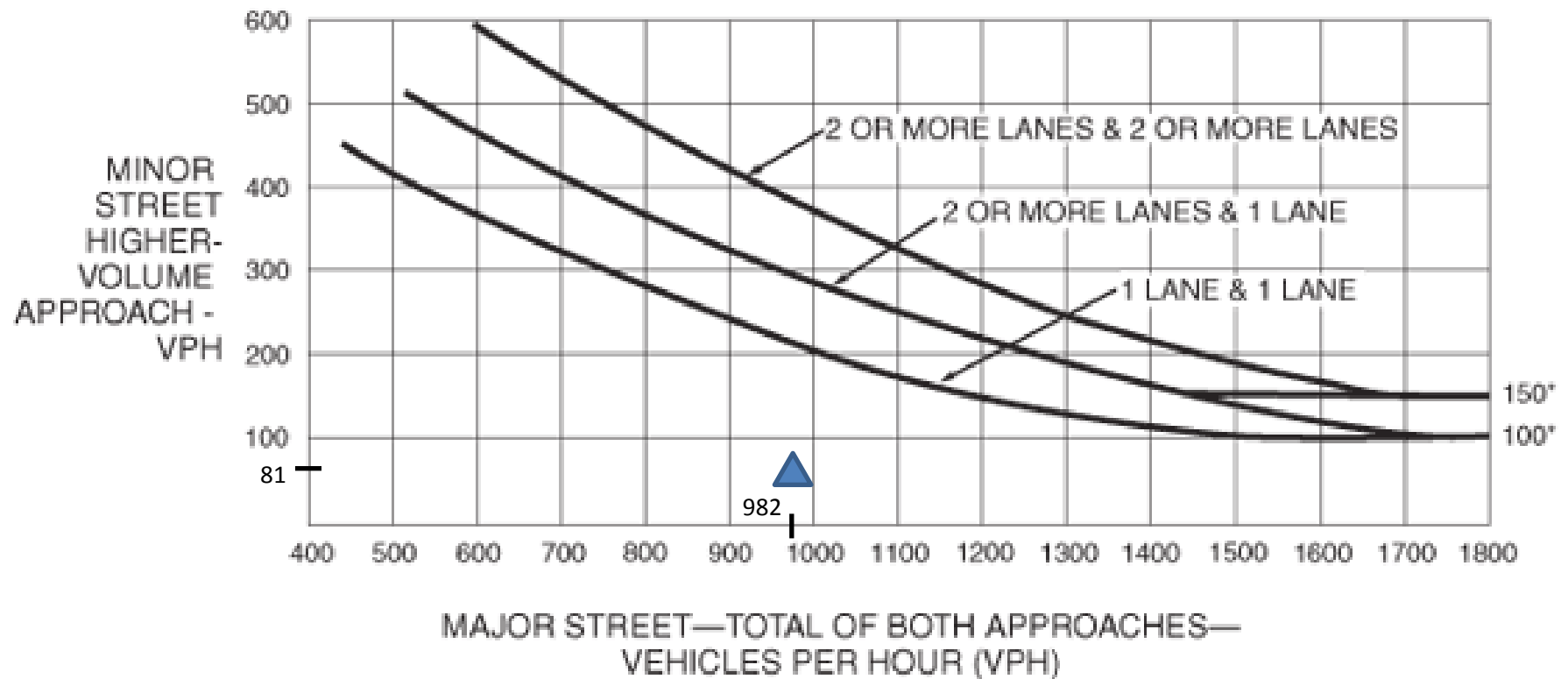
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Site Access
2017 Post-Development with Alternative 5
PM Peak Hour

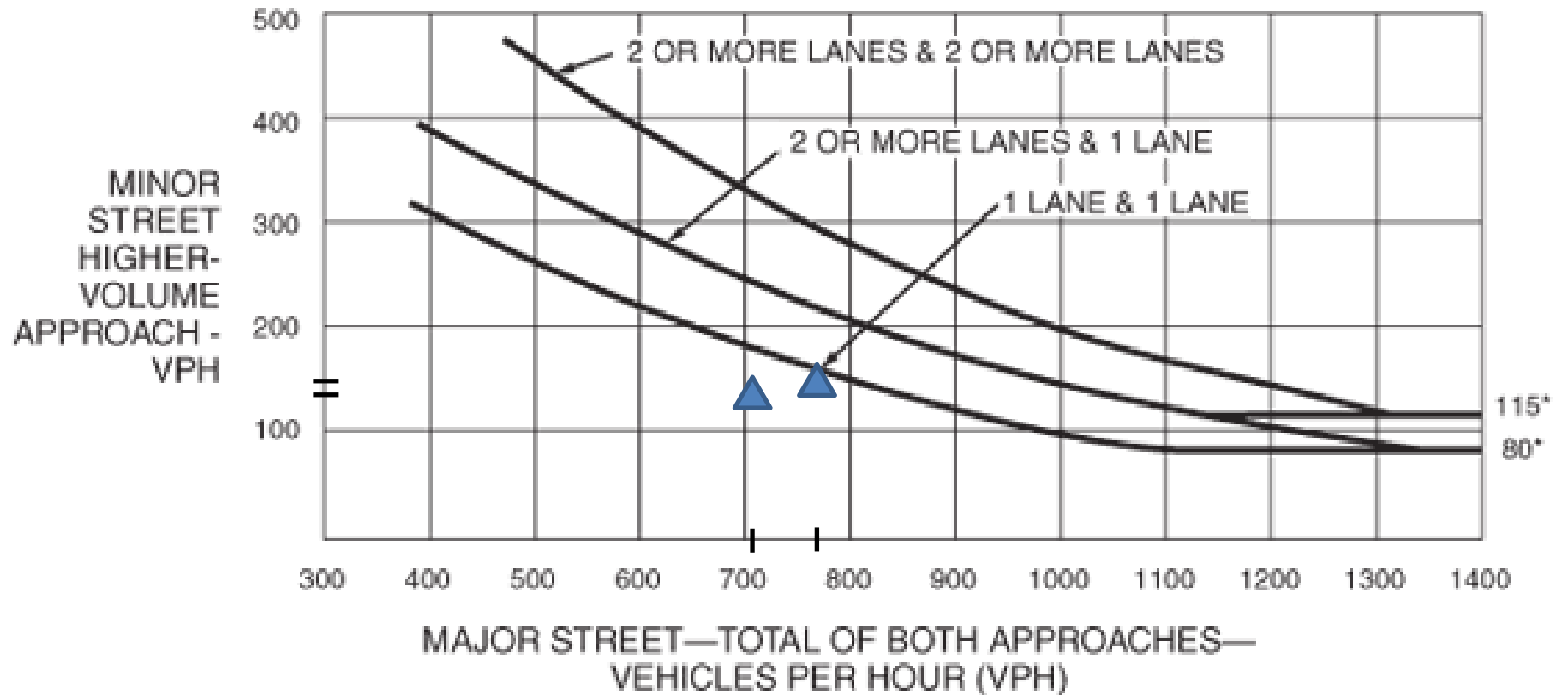
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Tannler Drive
2017 Post-Development
AM Peak Hour

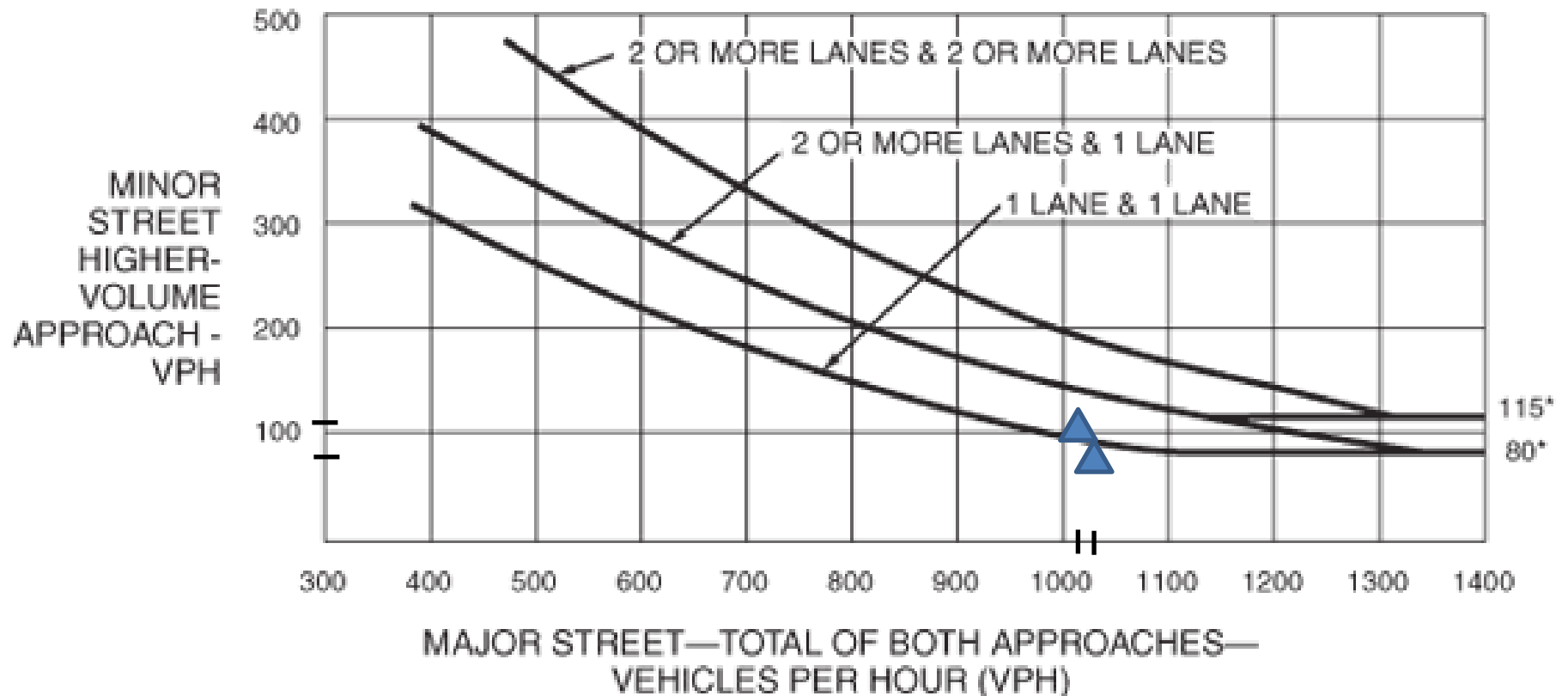
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Tannler Drive
2017 Post-Development
PM Peak Hour

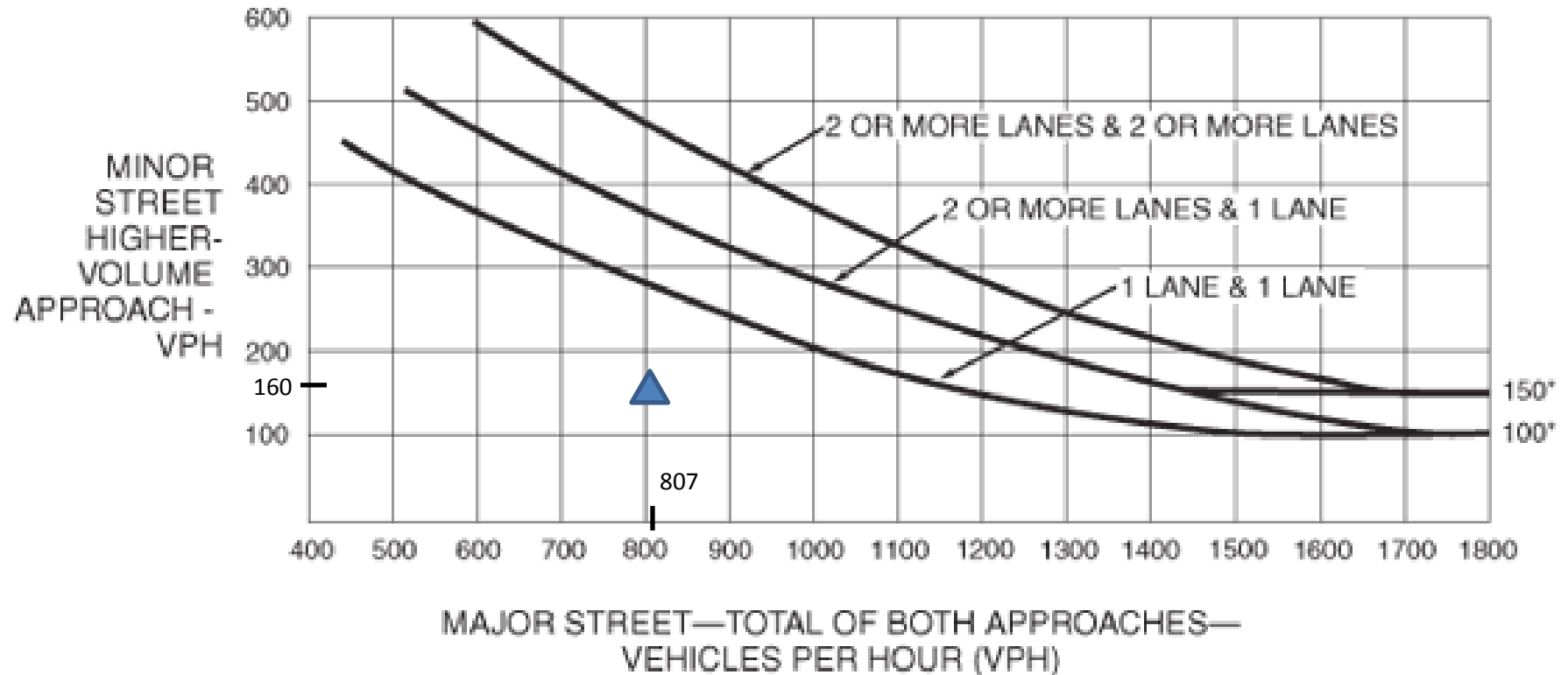
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Blankenship Road / Tannler Drive
2017 Post-Development
AM Peak Hour

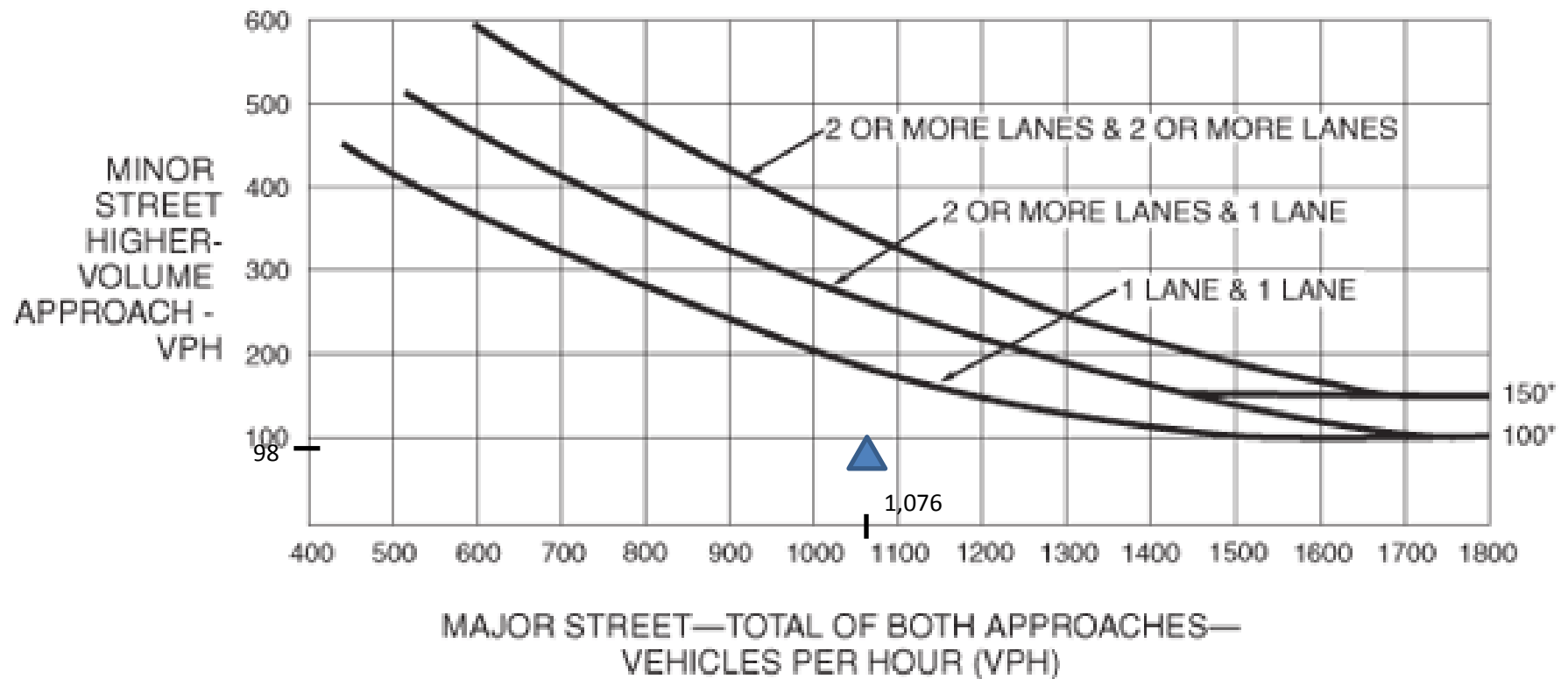
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

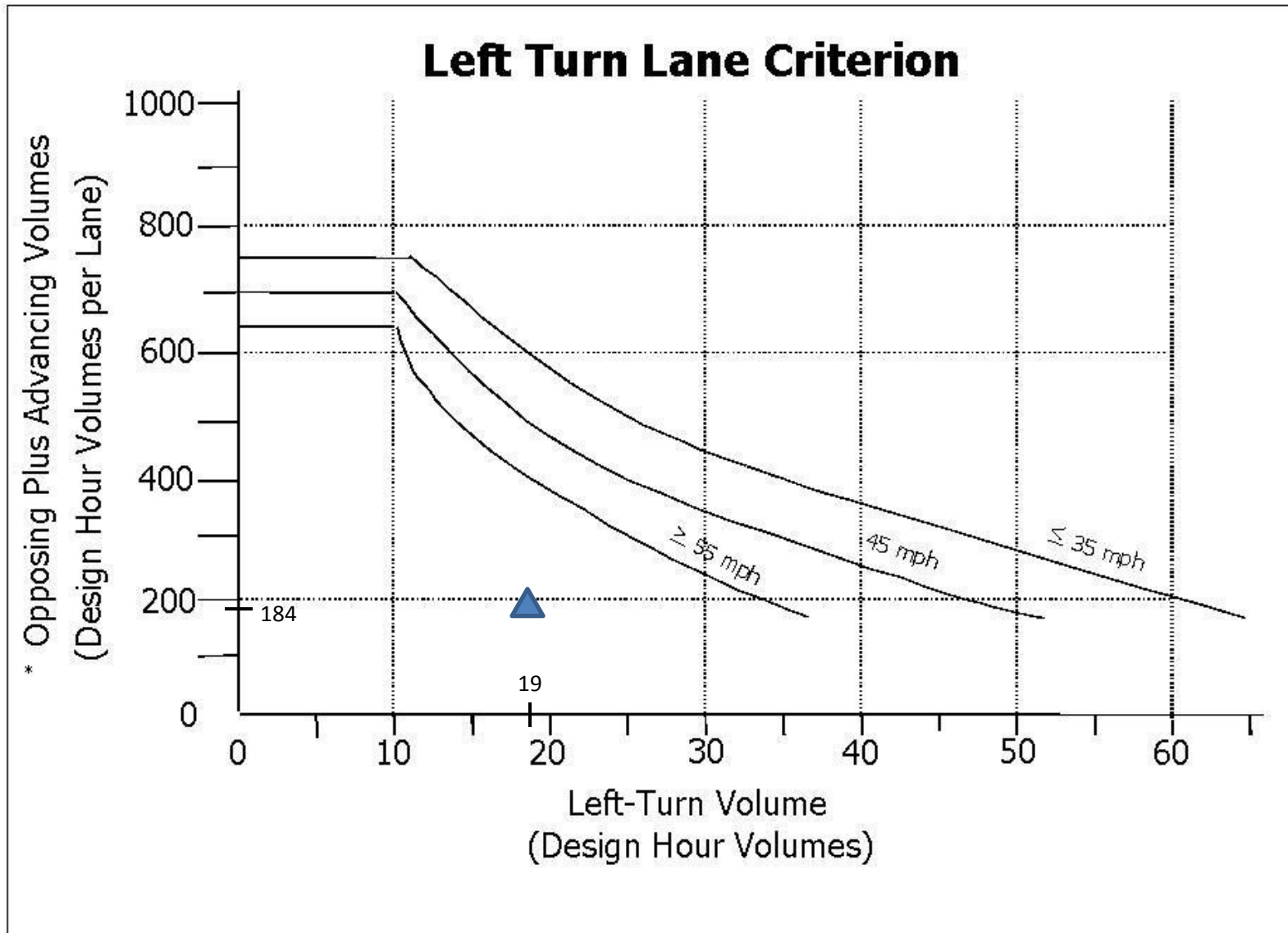
Blankenship Road / Tannler Drive
2017 Post-Development with Mitigation
PM Peak Hour

Figure 4C-3. Warrant 3, Peak Hour

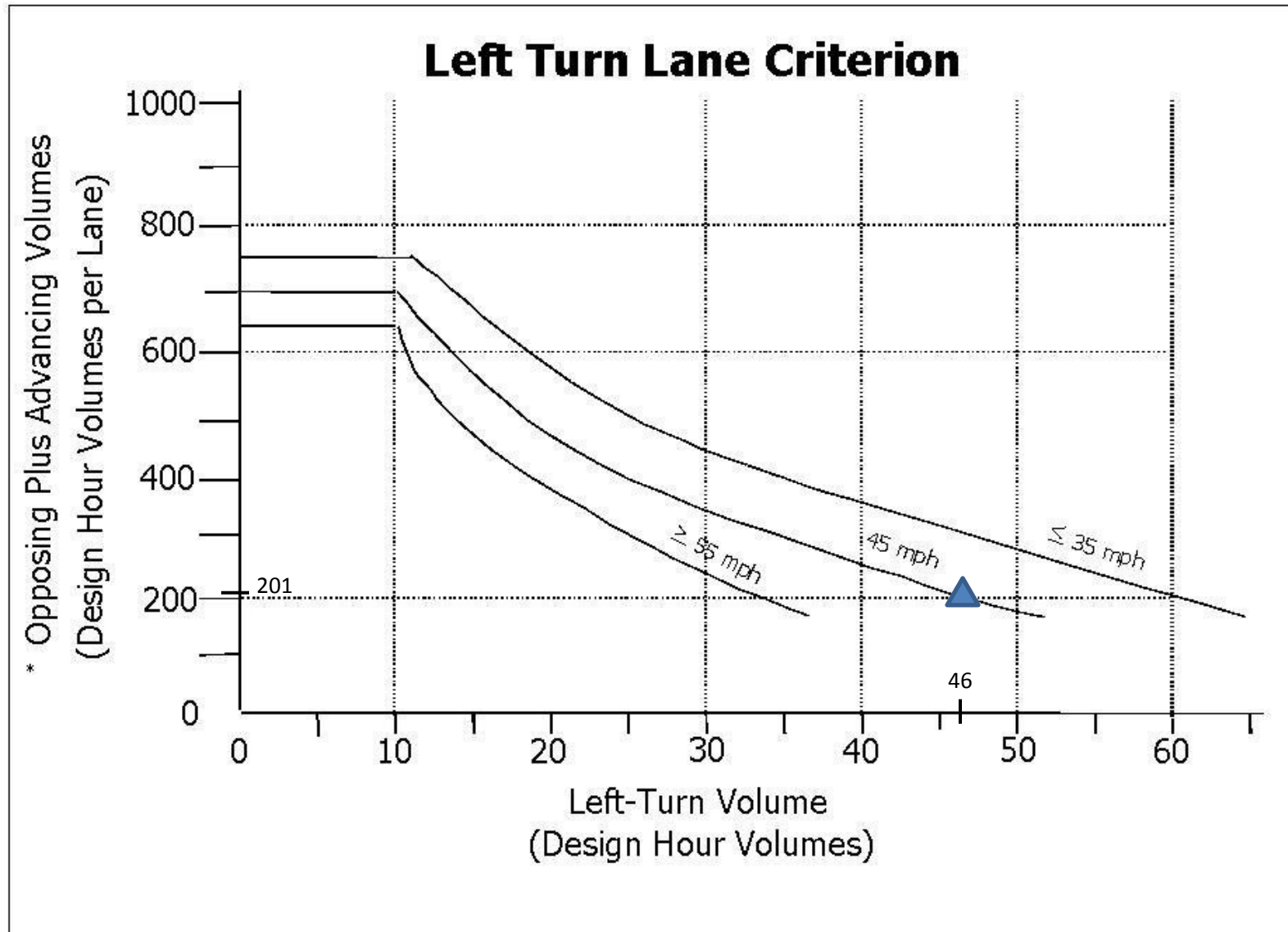


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Tannler Drive / Site Access
2017 Post-Development with Mitigation
AM Peak Hour



Tannler Drive / Site Access
2017 Post-Development with Mitigation
PM Peak Hour





7409 SW Tech Center Dr Ste. B150
Tigard, OR 97223
971-223-0003
www.qualitycounts.net

Site Code: 13543501
Location: 10th St & Salamo Rd
Date: 7/17/2015

Westbound Left				Interval Totals
	To I-205 WB On-Ramp	To Westernmost Lane	To Easternmost Lane	
7:20 AM	12	0	8	20
7:25 AM	19	0	8	27
7:30 AM	15	0	11	26
7:35 AM	20	0	17	37
7:40 AM	10	0	18	28
7:45 AM	17	0	12	29
7:50 AM	14	0	12	26
7:55 AM	9	0	16	25
8:00 AM	12	1	12	25
8:05 AM	19	0	11	30
8:10 AM	13	1	7	21
8:15 AM	5	0	12	17
Totals	166	2	144	
	53%		47%	

AM Peak Hour
Lane Utilization Factor for Salamo Road WBL

Movement	Movement Volume	Direction	Split	Split Volume	Utilization Volume	Utilization Split	Lane Utilization
WBT	62	N/A	N/A	62	308	59%	0.854
		Right	53%	246			
WBL	464	Left	47%	218	218	41%	



7409 SW Tech Center Dr Ste. B150
Tigard, OR 97223
971-223-0003
www.qualitycounts.net

Site Code: 13543502
Location: 10th St & Salamo Rd
Date: 7/16/2015

Westbound Left				Interval Totals
	To I-205 WB On-Ramp	To Westernmost Lane	To Easternmost Lane	
4:15 PM	18	0	16	34
4:20 PM	17	0	6	23
4:25 PM	7	1	7	15
4:30 PM	19	1	8	28
4:35 PM	12	1	5	18
4:40 PM	9	1	10	20
4:45 PM	22	0	9	31
4:50 PM	18	1	7	26
4:55 PM	19	0	6	25
5:00 PM	15	0	6	21
5:05 PM	22	0	8	30
5:10 PM	11	1	12	24
Totals	189	6	100	
	64%		36%	













PM Peak Hour
Lane Utilization Factor for Salamo Road WBL

Movement	Movement Volume	Direction	Split	Split Volume	Utilization Volume	Utilization Split	Lane Utilization
WBT	98	N/A	N/A	62	274	70%	0.717
		Right	64%	212			
WBL	331	Left	36%	119	119	30%	

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















7/19/2015

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	45	515	464	62	335	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	*0.85	*0.85	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (prot)	1792	1583	1504	1518	1687	1404
Flt Permitted	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (perm)	1792	1583	1504	1518	1687	1404
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	51	585	527	70	381	281
RTOR Reduction (vph)	0	82	0	0	0	58
Lane Group Flow (vph)	51	503	295	302	381	223
Heavy Vehicles (%)	6%	2%	2%	4%	7%	15%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	13.5	65.2	28.5	28.5	61.1	95.1
Effective Green, g (s)	13.5	65.2	28.5	28.5	61.1	95.1
Actuated g/C Ratio	0.11	0.55	0.24	0.24	0.51	0.80
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	202	862	358	361	861	1116
v/s Ratio Prot	0.03	c0.32	0.20	c0.20	c0.23	0.16
v/s Ratio Perm						
v/c Ratio	0.25	0.58	0.82	0.84	0.44	0.20
Uniform Delay, d1	48.4	18.1	43.2	43.3	18.5	3.0
Progression Factor	1.00	1.00	1.00	1.00	0.29	0.00
Incremental Delay, d2	0.4	0.8	13.8	15.0	0.5	0.0
Delay (s)	48.8	18.9	57.0	58.3	5.8	0.0
Level of Service	D	B	E	E	A	A
Approach Delay (s)	21.3			57.6	3.4	
Approach LOS	C			E	A	
Intersection Summary						
HCM 2000 Control Delay			26.5		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			119.6		Sum of lost time (s)	27.5
Intersection Capacity Utilization			55.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	103	0	202	155	390	0	0	595	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frt					1.00	0.85	1.00	1.00			0.95	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1687	1468	1805	1712			3338	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1687	1468	1805	1712			3338	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.00
Adj. Flow (vph)	0	0	0	116	0	227	174	438	0	0	669	378
RTOR Reduction (vph)	0	0	0	0	0	206	0	0	0	0	64	0
Lane Group Flow (vph)	0	0	0	0	116	21	174	438	0	0	983	0
Heavy Vehicles (%)	0%	0%	0%	7%	0%	10%	0%	11%	0%	0%	3%	1%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					11.1	11.1	14.1	35.1			72.4	
Effective Green, g (s)					11.1	11.1	14.1	35.1			72.4	
Actuated g/C Ratio					0.09	0.09	0.12	0.29			0.61	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					156	136	212	502			2020	
v/s Ratio Prot					c0.07		0.10	c0.26			c0.29	
v/s Ratio Perm						0.01						
v/c Ratio					0.74	0.15	0.82	0.87			0.49	
Uniform Delay, d1					52.9	49.9	51.5	40.1			13.2	
Progression Factor					1.00	1.00	1.00	1.00			0.60	
Incremental Delay, d2					16.1	0.3	21.2	16.6			0.1	
Delay (s)					68.9	50.2	72.7	56.7			7.9	
Level of Service					E	D	E	E			A	
Approach Delay (s)		0.0			56.6			61.3			7.9	
Approach LOS		A			E			E			A	
Intersection Summary												
HCM 2000 Control Delay			32.6									
HCM 2000 Level of Service											C	
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			119.6								27.5	
Intersection Capacity Utilization			56.6%									
ICU Level of Service											B	
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	335	24	91	243	46	31	4	23	72	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	3	6	19	0	0	5	0	0	0
Mvmt Flow	6	372	27	101	270	51	34	4	26	80	6	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	321	0	0	399	0	0	900	920	386	910	908	296
Stage 1	-	-	-	-	-	-	397	397	-	498	498	-
Stage 2	-	-	-	-	-	-	503	523	-	412	410	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	1250	-	-	1154	-	-	262	273	655	258	277	748
Stage 1	-	-	-	-	-	-	633	607	-	558	548	-
Stage 2	-	-	-	-	-	-	555	534	-	621	599	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1250	-	-	1154	-	-	238	248	655	227	252	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	248	-	227	252	-
Stage 1	-	-	-	-	-	-	630	604	-	555	500	-
Stage 2	-	-	-	-	-	-	498	487	-	590	596	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	2	19.1	29.2
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	320	1250	-	-	1154	-	-	237
HCM Lane V/C Ratio	0.201	0.004	-	-	0.088	-	-	0.38
HCM Control Delay (s)	19.1	7.9	-	-	8.4	-	-	29.2
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.7	0	-	-	0.3	-	-	1.7

Intersection

Int Delay, s/veh 4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	403	6	0	289	48	0	0	43	119	4	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	-	-	-	-	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	25	3	0	7	6	0	7	0	0	0	0	0
Mvmt Flow	24	429	6	0	307	51	0	0	46	127	4	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	359	0	0	435	0	0	832	840	432	814	817	333
Stage 1	-	-	-	-	-	-	481	481	-	333	333	-
Stage 2	-	-	-	-	-	-	351	359	-	481	484	-
Critical Hdwy	4.35	-	-	4.17	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.425	-	-	2.263	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1083	-	-	1099	-	-	283	304	628	299	313	713
Stage 1	-	-	-	-	-	-	557	557	-	685	647	-
Stage 2	-	-	-	-	-	-	655	631	-	570	555	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1083	-	-	1099	-	-	263	297	628	273	306	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	263	297	-	273	306	-
Stage 1	-	-	-	-	-	-	545	545	-	670	647	-
Stage 2	-	-	-	-	-	-	623	631	-	517	543	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	11.2	25.2
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	628	1083	-	-	1099	-	-	273	614
HCM Lane V/C Ratio	0.073	0.023	-	-	-	-	-	0.464	0.057
HCM Control Delay (s)	11.2	8.4	-	-	0	-	-	29.1	11.2
HCM Lane LOS	B	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	2.3	0.2

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















7/19/2015

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	48	515	464	62	335	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	*0.85	*0.85	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (prot)	1792	1583	1504	1518	1687	1404
Flt Permitted	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (perm)	1792	1583	1504	1518	1687	1404
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	55	585	527	70	381	281
RTOR Reduction (vph)	0	75	0	0	0	60
Lane Group Flow (vph)	55	510	295	302	381	221
Heavy Vehicles (%)	6%	2%	2%	4%	7%	15%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	14.5	67.4	26.1	26.1	62.1	93.7
Effective Green, g (s)	14.5	67.4	26.1	26.1	62.1	93.7
Actuated g/C Ratio	0.12	0.57	0.22	0.22	0.52	0.79
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	217	895	329	332	878	1103
v/s Ratio Prot	0.03	c0.32	0.20	c0.20	c0.23	0.16
v/s Ratio Perm						
v/c Ratio	0.25	0.57	0.90	0.91	0.43	0.20
Uniform Delay, d1	47.4	16.6	45.2	45.4	17.7	3.2
Progression Factor	1.00	1.00	1.00	1.00	0.29	0.00
Incremental Delay, d2	0.4	0.7	25.1	27.2	0.5	0.0
Delay (s)	47.8	17.3	70.3	72.6	5.5	0.0
Level of Service	D	B	E	E	A	A
Approach Delay (s)	19.9			71.5	3.2	
Approach LOS	B			E	A	
Intersection Summary						
HCM 2000 Control Delay			30.3		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			119.2		Sum of lost time (s)	27.5
Intersection Capacity Utilization			55.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	103	0	202	155	390	0	0	595	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frt					1.00	0.85	1.00	1.00			0.95	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1687	1468	1805	1712			3338	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1687	1468	1805	1712			3338	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.00
Adj. Flow (vph)	0	0	0	116	0	227	174	438	0	0	669	378
RTOR Reduction (vph)	0	0	0	0	0	205	0	0	0	0	64	0
Lane Group Flow (vph)	0	0	0	0	116	22	174	438	0	0	983	0
Heavy Vehicles (%)	0%	0%	0%	7%	0%	10%	0%	11%	0%	0%	3%	1%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					11.7	11.7	14.2	35.7			71.3	
Effective Green, g (s)					11.7	11.7	14.2	35.7			71.3	
Actuated g/C Ratio					0.10	0.10	0.12	0.30			0.60	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					165	144	215	512			1996	
v/s Ratio Prot					c0.07		0.10	c0.26			c0.29	
v/s Ratio Perm						0.02						
v/c Ratio					0.70	0.15	0.81	0.86			0.49	
Uniform Delay, d1					52.1	49.2	51.2	39.3			13.6	
Progression Factor					1.00	1.00	1.00	1.00			0.55	
Incremental Delay, d2					11.3	0.3	19.0	14.4			0.1	
Delay (s)					63.4	49.5	70.2	53.8			7.6	
Level of Service					E	D	E	D			A	
Approach Delay (s)		0.0			54.2			58.4			7.6	
Approach LOS		A			D			E			A	
Intersection Summary												
HCM 2000 Control Delay			31.1									
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			119.2									
Intersection Capacity Utilization			56.6%									
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	335	24	95	243	46	31	4	26	72	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	3	6	19	0	0	5	0	0	0
Mvmt Flow	6	372	27	106	270	51	34	4	29	80	6	4
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	321	0	0	399	0	0	909	929	386	920	917	296
Stage 1	-	-	-	-	-	-	397	397	-	507	507	-
Stage 2	-	-	-	-	-	-	512	532	-	413	410	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	1250	-	-	1154	-	-	258	270	655	254	274	748
Stage 1	-	-	-	-	-	-	633	607	-	552	543	-
Stage 2	-	-	-	-	-	-	548	529	-	620	599	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1250	-	-	1154	-	-	234	244	655	222	248	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	234	244	-	222	248	-
Stage 1	-	-	-	-	-	-	630	604	-	549	493	-
Stage 2	-	-	-	-	-	-	489	480	-	585	596	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			2.1			19.1			30		
HCM LOS							C			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	323	1250	-	-	1154	-	-	232				
HCM Lane V/C Ratio	0.21	0.004	-	-	0.091	-	-	0.388				
HCM Control Delay (s)	19.1	7.9	-	-	8.4	-	-	30				
HCM Lane LOS	C	A	-	-	A	-	-	D				
HCM 95th %tile Q(veh)	0.8	0	-	-	0.3	-	-	1.7				

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	427	6	0	349	48	0	0	43	0	0	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	25	3	0	7	6	0	7	0	0	0	0	0
Mvmt Flow	0	454	6	0	371	51	0	0	46	0	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	422	0	0	461	0	0	854	879	457	854	858	397
Stage 1	-	-	-	-	-	-	457	457	-	397	397	-
Stage 2	-	-	-	-	-	-	397	422	-	457	461	-
Critical Hdwy	4.35	-	-	4.17	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.425	-	-	2.263	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1024	-	-	1074	-	-	273	288	608	281	297	657
Stage 1	-	-	-	-	-	-	574	571	-	633	607	-
Stage 2	-	-	-	-	-	-	619	592	-	587	569	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1024	-	-	1074	-	-	258	288	608	260	297	657
Mov Cap-2 Maneuver	-	-	-	-	-	-	258	288	-	260	297	-
Stage 1	-	-	-	-	-	-	574	571	-	633	607	-
Stage 2	-	-	-	-	-	-	586	592	-	543	569	-













Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.4	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	608	1024	-	-	1074	-	-	657
HCM Lane V/C Ratio	0.075	-	-	-	-	-	-	0.053
HCM Control Delay (s)	11.4	0	-	-	0	-	-	10.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















7/19/2015

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	72	396	583	62	335	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (prot)	1792	1583	1681	1694	1687	1404
Flt Permitted	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (perm)	1792	1583	1681	1694	1687	1404
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	82	450	662	70	381	281
RTOR Reduction (vph)	0	65	0	0	0	60
Lane Group Flow (vph)	82	385	364	368	381	221
Heavy Vehicles (%)	6%	2%	2%	4%	7%	15%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	14.4	67.1	26.1	26.1	61.9	93.5
Effective Green, g (s)	14.4	67.1	26.1	26.1	61.9	93.5
Actuated g/C Ratio	0.12	0.56	0.22	0.22	0.52	0.79
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	217	893	369	371	878	1104
v/s Ratio Prot	0.05	c0.24	0.22	c0.22	c0.23	0.16
v/s Ratio Perm						
v/c Ratio	0.38	0.43	0.99	0.99	0.43	0.20
Uniform Delay, d1	48.1	14.9	46.2	46.3	17.7	3.2
Progression Factor	1.00	1.00	1.00	1.00	0.29	0.00
Incremental Delay, d2	0.6	0.2	42.8	44.4	0.5	0.0
Delay (s)	48.8	15.1	89.0	90.7	5.5	0.0
Level of Service	D	B	F	F	A	A
Approach Delay (s)	20.3			89.8	3.2	
Approach LOS	C			F	A	
Intersection Summary						
HCM 2000 Control Delay			40.8		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.67			
Actuated Cycle Length (s)			118.9		Sum of lost time (s)	27.5
Intersection Capacity Utilization			52.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	103	0	202	155	390	0	0	595	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frt					1.00	0.85	1.00	1.00			0.95	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1687	1468	1805	1712			3338	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1687	1468	1805	1712			3338	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.00
Adj. Flow (vph)	0	0	0	116	0	227	174	438	0	0	669	378
RTOR Reduction (vph)	0	0	0	0	0	205	0	0	0	0	64	0
Lane Group Flow (vph)	0	0	0	0	116	22	174	438	0	0	983	0
Heavy Vehicles (%)	0%	0%	0%	7%	0%	10%	0%	11%	0%	0%	3%	1%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					11.7	11.7	14.2	35.5			71.0	
Effective Green, g (s)					11.7	11.7	14.2	35.5			71.0	
Actuated g/C Ratio					0.10	0.10	0.12	0.30			0.60	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					166	144	215	511			1993	
v/s Ratio Prot					c0.07		0.10	c0.26			c0.29	
v/s Ratio Perm						0.02						
v/c Ratio					0.70	0.16	0.81	0.86			0.49	
Uniform Delay, d1					51.9	49.1	51.0	39.3			13.7	
Progression Factor					1.00	1.00	1.00	1.00			0.34	
Incremental Delay, d2					10.7	0.3	19.0	14.6			0.1	
Delay (s)					62.6	49.4	70.0	53.9			4.8	
Level of Service					E	D	E	D			A	
Approach Delay (s)		0.0			53.8			58.5			4.8	
Approach LOS		A			D			E			A	
Intersection Summary												
HCM 2000 Control Delay			29.6									
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			118.9									
Intersection Capacity Utilization			56.6%									
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	335	24	35	243	46	30	4	23	72	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	3	6	19	0	0	5	0	0	0
Mvmt Flow	6	372	27	39	270	51	33	4	26	80	6	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	321	0	0	399	0	0	775	796	386	785	783	296
Stage 1	-	-	-	-	-	-	397	397	-	373	373	-
Stage 2	-	-	-	-	-	-	378	399	-	412	410	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	1250	-	-	1154	-	-	318	322	655	313	328	748
Stage 1	-	-	-	-	-	-	633	607	-	652	622	-
Stage 2	-	-	-	-	-	-	648	606	-	621	599	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1250	-	-	1154	-	-	303	310	655	289	315	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	303	310	-	289	315	-
Stage 1	-	-	-	-	-	-	630	604	-	649	601	-
Stage 2	-	-	-	-	-	-	617	586	-	590	596	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.9	16.1	22.1
HCM LOS			C	C













Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	388	1250	-	-	1154	-	-	300
HCM Lane V/C Ratio	0.163	0.004	-	-	0.034	-	-	0.3
HCM Control Delay (s)	16.1	7.9	-	-	8.2	-	-	22.1
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	1.2

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	427	6	60	289	48	1	0	43	0	0	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	-	0	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	25	3	0	7	6	0	7	0	0	0	0	0
Mvmt Flow	0	454	6	64	307	51	1	0	46	0	0	35
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	359	0	0	461	0	0	918	943	457	918	922	333
Stage 1	-	-	-	-	-	-	457	457	-	461	461	-
Stage 2	-	-	-	-	-	-	461	486	-	457	461	-
Critical Hdwy	4.35	-	-	4.17	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.425	-	-	2.263	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1083	-	-	1074	-	-	247	265	608	254	272	713
Stage 1	-	-	-	-	-	-	574	571	-	584	569	-
Stage 2	-	-	-	-	-	-	571	554	-	587	569	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1083	-	-	1074	-	-	224	249	608	224	256	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	224	249	-	224	256	-
Stage 1	-	-	-	-	-	-	574	571	-	584	535	-
Stage 2	-	-	-	-	-	-	511	521	-	543	569	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			1.3			11.6			10.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	224	608	1083	-	-	1074	-	-	713			
HCM Lane V/C Ratio	0.005	0.075	-	-	-	0.059	-	-	0.049			
HCM Control Delay (s)	21.1	11.4	0	-	-	8.6	-	-	10.3			
HCM Lane LOS	C	B	A	-	-	A	-	-	B			
HCM 95th %tile Q(veh)	0	0.2	0	-	-	0.2	-	-	0.2			

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	72	396	583	62	335	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	*0.85	*0.85	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (prot)	1792	1583	1504	1516	1687	1404
Flt Permitted	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (perm)	1792	1583	1504	1516	1687	1404
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	82	450	662	70	381	281
RTOR Reduction (vph)	0	65	0	0	0	60
Lane Group Flow (vph)	82	385	364	368	381	221
Heavy Vehicles (%)	6%	2%	2%	4%	7%	15%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	14.4	67.1	26.1	26.1	61.9	93.5
Effective Green, g (s)	14.4	67.1	26.1	26.1	61.9	93.5
Actuated g/C Ratio	0.12	0.56	0.22	0.22	0.52	0.79
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	217	893	330	332	878	1104
v/s Ratio Prot	0.05	c0.24	0.24	c0.24	c0.23	0.16
v/s Ratio Perm						
v/c Ratio	0.38	0.43	1.10	1.11	0.43	0.20
Uniform Delay, d1	48.1	14.9	46.4	46.4	17.7	3.2
Progression Factor	1.00	1.00	1.00	1.00	0.29	0.00
Incremental Delay, d2	0.6	0.2	80.1	81.8	0.5	0.0
Delay (s)	48.8	15.1	126.5	128.2	5.5	0.0
Level of Service	D	B	F	F	A	A
Approach Delay (s)	20.3			127.4	3.2	
Approach LOS	C			F	A	
Intersection Summary						
HCM 2000 Control Delay			55.1		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			118.9		Sum of lost time (s)	27.5
Intersection Capacity Utilization			52.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp

7/19/2015




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	103	0	202	155	390	0	0	595	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frt					1.00	0.85	1.00	1.00			0.95	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1687	1468	1805	1712			3338	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1687	1468	1805	1712			3338	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.00
Adj. Flow (vph)	0	0	0	116	0	227	174	438	0	0	669	378
RTOR Reduction (vph)	0	0	0	0	0	205	0	0	0	0	64	0
Lane Group Flow (vph)	0	0	0	0	116	22	174	438	0	0	983	0
Heavy Vehicles (%)	0%	0%	0%	7%	0%	10%	0%	11%	0%	0%	3%	1%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					11.7	11.7	14.2	35.5			71.0	
Effective Green, g (s)					11.7	11.7	14.2	35.5			71.0	
Actuated g/C Ratio					0.10	0.10	0.12	0.30			0.60	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					166	144	215	511			1993	
v/s Ratio Prot					c0.07		0.10	c0.26			c0.29	
v/s Ratio Perm						0.02						
v/c Ratio					0.70	0.16	0.81	0.86			0.49	
Uniform Delay, d1					51.9	49.1	51.0	39.3			13.7	
Progression Factor					1.00	1.00	1.00	1.00			0.33	
Incremental Delay, d2					10.7	0.3	19.0	14.6			0.1	
Delay (s)					62.6	49.4	70.0	53.9			4.6	
Level of Service					E	D	E	D			A	
Approach Delay (s)		0.0			53.8			58.5			4.6	
Approach LOS		A			D			E			A	
Intersection Summary												
HCM 2000 Control Delay			29.5									
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			118.9									
Intersection Capacity Utilization			56.6%									
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	335	24	31	243	46	30	4	23	49	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	3	6	19	0	0	5	0	0	0
Mvmt Flow	6	372	27	34	270	51	33	4	26	54	6	4
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	321	0	0	399	0	0	766	787	386	776	774	296
Stage 1	-	-	-	-	-	-	397	397	-	364	364	-
Stage 2	-	-	-	-	-	-	369	390	-	412	410	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	1250	-	-	1154	-	-	322	326	655	317	332	748
Stage 1	-	-	-	-	-	-	633	607	-	659	627	-
Stage 2	-	-	-	-	-	-	655	611	-	621	599	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1250	-	-	1154	-	-	308	315	655	294	321	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	315	-	294	321	-
Stage 1	-	-	-	-	-	-	630	604	-	656	609	-
Stage 2	-	-	-	-	-	-	626	593	-	590	596	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.8			15.9			19.7		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	393	1250	-	-	1154	-	-	309				
HCM Lane V/C Ratio	0.161	0.004	-	-	0.03	-	-	0.209				
HCM Control Delay (s)	15.9	7.9	-	-	8.2	-	-	19.7				
HCM Lane LOS	C	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.8				

HCM Signalized Intersection Capacity Analysis

4: Haggen's Site Access/Tannler Drive & Blankenship Road

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	380	6	60	289	48	1	3	40	142	4	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	0.98			1.00	0.85		0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00		0.96	
Satd. Flow (prot)	1444	1841		1687	1768			1844	1615		1785	
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00		0.66	
Satd. Flow (perm)	1444	1841		1687	1768			1793	1615		1224	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	24	404	6	64	307	51	1	3	43	151	4	31
RTOR Reduction (vph)	0	1	0	0	6	0	0	0	29	0	6	0
Lane Group Flow (vph)	24	409	0	64	352	0	0	4	14	0	180	0
Heavy Vehicles (%)	25%	3%	0%	7%	6%	0%	7%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	2.9	22.8		5.9	25.8			24.9	24.9		35.5	
Effective Green, g (s)	2.9	22.8		5.9	25.8			24.9	24.9		35.5	
Actuated g/C Ratio	0.04	0.29		0.07	0.33			0.31	0.31		0.45	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	52	529		125	575			563	507		588	
v/s Ratio Prot	0.02	c0.22		c0.04	c0.20						c0.02	
v/s Ratio Perm								0.00	0.01		c0.12	
v/c Ratio	0.46	0.77		0.51	0.61			0.01	0.03		0.31	
Uniform Delay, d1	37.4	25.8		35.3	22.5			18.7	18.8		14.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	6.4	6.9		3.5	1.9			0.0	0.0		0.3	
Delay (s)	43.7	32.8		38.8	24.4			18.7	18.8		14.3	
Level of Service	D	C		D	C			B	B		B	
Approach Delay (s)		33.4			26.6			18.8			14.3	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			26.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			79.2			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			52.7%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















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	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	45	515	464	62	335	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	*0.85	*0.85	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (prot)	1792	1583	1504	1518	1687	1404
Flt Permitted	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (perm)	1792	1583	1504	1518	1687	1404
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	51	585	527	70	381	281
RTOR Reduction (vph)	0	75	0	0	0	60
Lane Group Flow (vph)	51	510	295	302	381	221
Heavy Vehicles (%)	6%	2%	2%	4%	7%	15%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	14.5	67.4	26.1	26.1	62.1	93.7
Effective Green, g (s)	14.5	67.4	26.1	26.1	62.1	93.7
Actuated g/C Ratio	0.12	0.57	0.22	0.22	0.52	0.79
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	217	895	329	332	878	1103
v/s Ratio Prot	0.03	c0.32	0.20	c0.20	c0.23	0.16
v/s Ratio Perm						
v/c Ratio	0.24	0.57	0.90	0.91	0.43	0.20
Uniform Delay, d1	47.3	16.6	45.2	45.4	17.7	3.2
Progression Factor	1.00	1.00	1.00	1.00	0.29	0.00
Incremental Delay, d2	0.3	0.7	25.1	27.2	0.5	0.0
Delay (s)	47.7	17.3	70.3	72.6	5.5	0.0
Level of Service	D	B	E	E	A	A
Approach Delay (s)	19.7			71.5	3.2	
Approach LOS	B			E	A	
Intersection Summary						
HCM 2000 Control Delay			30.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			119.2		Sum of lost time (s)	27.5
Intersection Capacity Utilization			55.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp



















7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	103	0	202	155	390	0	0	595	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frt					1.00	0.85	1.00	1.00			0.95	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1687	1468	1805	1712			3338	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1687	1468	1805	1712			3338	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.00
Adj. Flow (vph)	0	0	0	116	0	227	174	438	0	0	669	378
RTOR Reduction (vph)	0	0	0	0	0	205	0	0	0	0	64	0
Lane Group Flow (vph)	0	0	0	0	116	22	174	438	0	0	983	0
Heavy Vehicles (%)	0%	0%	0%	7%	0%	10%	0%	11%	0%	0%	3%	1%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					11.7	11.7	14.2	35.7			71.3	
Effective Green, g (s)					11.7	11.7	14.2	35.7			71.3	
Actuated g/C Ratio					0.10	0.10	0.12	0.30			0.60	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					165	144	215	512			1996	
v/s Ratio Prot					c0.07		0.10	c0.26			c0.29	
v/s Ratio Perm						0.02						
v/c Ratio					0.70	0.15	0.81	0.86			0.49	
Uniform Delay, d1					52.1	49.2	51.2	39.3			13.6	
Progression Factor					1.00	1.00	1.00	1.00			0.55	
Incremental Delay, d2					11.3	0.3	19.0	14.4			0.1	
Delay (s)					63.4	49.5	70.2	53.8			7.6	
Level of Service					E	D	E	D			A	
Approach Delay (s)		0.0			54.2			58.4			7.6	
Approach LOS		A			D			E			A	
Intersection Summary												
HCM 2000 Control Delay			31.1									
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			119.2									
Intersection Capacity Utilization			56.6%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Haggen's Access/Site Access & Blankenship Road

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	335	24	91	243	46	31	4	23	72	5	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)	1805	1830		1752	1716			1715			1808	
Flt Permitted	0.95	1.00		0.95	1.00			0.84			0.73	
Satd. Flow (perm)	1805	1830		1752	1716			1479			1370	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	372	27	101	270	51	34	4	26	80	6	4
RTOR Reduction (vph)	0	4	0	0	9	0	0	19	0	0	2	0
Lane Group Flow (vph)	6	395	0	101	312	0	0	45	0	0	88	0
Heavy Vehicles (%)	0%	3%	0%	3%	6%	19%	0%	0%	5%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.7	18.2		4.1	21.6			11.5			11.5	
Effective Green, g (s)	0.7	18.2		4.1	21.6			11.5			11.5	
Actuated g/C Ratio	0.02	0.40		0.09	0.47			0.25			0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	27	727		156	809			371			343	
v/s Ratio Prot	0.00	c0.22		c0.06	c0.18							
v/s Ratio Perm								0.03			c0.06	
v/c Ratio	0.22	0.54		0.65	0.39			0.12			0.26	
Uniform Delay, d1	22.3	10.6		20.2	7.8			13.2			13.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	4.1	0.8		8.9	0.3			0.1			0.4	
Delay (s)	26.4	11.4		29.1	8.1			13.4			14.1	
Level of Service	C	B		C	A			B			B	
Approach Delay (s)		11.7			13.1			13.4			14.1	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			12.6			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			45.8			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			41.1%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	403	6	0	289	48	0	0	43	119	4	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	-	-	-	-	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	25	3	0	7	6	0	7	0	0	0	0	0
Mvmt Flow	24	429	6	0	307	51	0	0	46	127	4	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	359	0	0	435	0	0	832	840	432	814	817	333
Stage 1	-	-	-	-	-	-	481	481	-	333	333	-
Stage 2	-	-	-	-	-	-	351	359	-	481	484	-
Critical Hdwy	4.35	-	-	4.17	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.425	-	-	2.263	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1083	-	-	1099	-	-	283	304	628	299	313	713
Stage 1	-	-	-	-	-	-	557	557	-	685	647	-
Stage 2	-	-	-	-	-	-	655	631	-	570	555	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1083	-	-	1099	-	-	263	297	628	273	306	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	263	297	-	273	306	-
Stage 1	-	-	-	-	-	-	545	545	-	670	647	-
Stage 2	-	-	-	-	-	-	623	631	-	517	543	-













Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	11.2	25.2
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	628	1083	-	-	1099	-	-	273	614
HCM Lane V/C Ratio	0.073	0.023	-	-	-	-	-	0.464	0.057
HCM Control Delay (s)	11.2	8.4	-	-	0	-	-	29.1	11.2
HCM Lane LOS	B	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	2.3	0.2

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















7/19/2015

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	48	515	464	62	335	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	*0.85	*0.85	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (prot)	1792	1583	1504	1518	1687	1404
Flt Permitted	1.00	1.00	0.95	0.96	0.95	1.00
Satd. Flow (perm)	1792	1583	1504	1518	1687	1404
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	55	585	527	70	381	281
RTOR Reduction (vph)	0	75	0	0	0	60
Lane Group Flow (vph)	55	510	295	302	381	221
Heavy Vehicles (%)	6%	2%	2%	4%	7%	15%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	14.5	67.4	26.1	26.1	62.1	93.7
Effective Green, g (s)	14.5	67.4	26.1	26.1	62.1	93.7
Actuated g/C Ratio	0.12	0.57	0.22	0.22	0.52	0.79
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	217	895	329	332	878	1103
v/s Ratio Prot	0.03	c0.32	0.20	c0.20	c0.23	0.16
v/s Ratio Perm						
v/c Ratio	0.25	0.57	0.90	0.91	0.43	0.20
Uniform Delay, d1	47.4	16.6	45.2	45.4	17.7	3.2
Progression Factor	1.00	1.00	1.00	1.00	0.29	0.00
Incremental Delay, d2	0.4	0.7	25.1	27.2	0.5	0.0
Delay (s)	47.8	17.3	70.3	72.6	5.5	0.0
Level of Service	D	B	E	E	A	A
Approach Delay (s)	19.9			71.5	3.2	
Approach LOS	B			E	A	
Intersection Summary						
HCM 2000 Control Delay			30.3		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			119.2		Sum of lost time (s)	27.5
Intersection Capacity Utilization			55.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	103	0	202	155	390	0	0	595	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frt					1.00	0.85	1.00	1.00			0.95	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1687	1468	1805	1712			3338	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1687	1468	1805	1712			3338	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.00
Adj. Flow (vph)	0	0	0	116	0	227	174	438	0	0	669	378
RTOR Reduction (vph)	0	0	0	0	0	205	0	0	0	0	64	0
Lane Group Flow (vph)	0	0	0	0	116	22	174	438	0	0	983	0
Heavy Vehicles (%)	0%	0%	0%	7%	0%	10%	0%	11%	0%	0%	3%	1%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					11.7	11.7	14.2	35.7			71.3	
Effective Green, g (s)					11.7	11.7	14.2	35.7			71.3	
Actuated g/C Ratio					0.10	0.10	0.12	0.30			0.60	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					165	144	215	512			1996	
v/s Ratio Prot					c0.07		0.10	c0.26			c0.29	
v/s Ratio Perm						0.02						
v/c Ratio					0.70	0.15	0.81	0.86			0.49	
Uniform Delay, d1					52.1	49.2	51.2	39.3			13.6	
Progression Factor					1.00	1.00	1.00	1.00			0.55	
Incremental Delay, d2					11.3	0.3	19.0	14.4			0.1	
Delay (s)					63.4	49.5	70.2	53.8			7.6	
Level of Service					E	D	E	D			A	
Approach Delay (s)		0.0			54.2			58.4			7.6	
Approach LOS		A			D			E			A	
Intersection Summary												
HCM 2000 Control Delay			31.1									
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			119.2									
Intersection Capacity Utilization			56.6%									
Analysis Period (min)			15									
c Critical Lane Group												

Queuing and Blocking Report
Post-Development (2017) with 10th Street Mitigation

7/19/2015

Intersection: 1: Tannler Drive & North Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	60	34
Average Queue (ft)	22	3
95th Queue (ft)	49	18
Link Distance (ft)	286	845
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: 13th Street & Blankenship Road

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	20	74	26	7
Average Queue (ft)	2	28	1	0
95th Queue (ft)	14	53	10	4
Link Distance (ft)	478	467	134	49
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Haggen's Access/Site Access & Blankenship Road

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	18	39	70	71
Average Queue (ft)	1	9	30	38
95th Queue (ft)	9	33	57	63
Link Distance (ft)			307	450
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50	50		
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Queuing and Blocking Report
Post-Development (2017) with 10th Street Mitigation

7/19/2015

Intersection: 4: Haggen's Site Access/Tannler Drive & Blankenship Road

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	LT	R	L	TR
Maximum Queue (ft)	54	18	62	40	67	117	41
Average Queue (ft)	7	1	15	5	27	46	19
95th Queue (ft)	31	9	43	24	53	94	42
Link Distance (ft)		278		284	284		845
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50		150			150	
Storage Blk Time (%)	0	0				0	
Queuing Penalty (veh)	1	0				0	

Intersection: 5: 10th Street & Blankenship Road/Salamo Drive

Movement	EB	EB	WB	WB	NB
Directions Served	T	R	L	LT	L
Maximum Queue (ft)	194	194	250	400	108
Average Queue (ft)	52	110	162	196	47
95th Queue (ft)	137	188	257	322	92
Link Distance (ft)	239			1335	
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)		100	200		100
Storage Blk Time (%)	2	9	3	7	1
Queuing Penalty (veh)	10	4	11	17	2

Intersection: 6: 10th Street & I-205 Southbound Ramp

Movement	WB	WB	NB	NB	B19	SB	SB
Directions Served	LT	R	L	T	T	T	TR
Maximum Queue (ft)	187	138	218	317	291	156	158
Average Queue (ft)	85	63	153	231	72	69	44
95th Queue (ft)	159	113	254	356	235	133	105
Link Distance (ft)		2045		218	255	171	171
Upstream Blk Time (%)			0	20	1	0	0
Queuing Penalty (veh)			0	114	8	0	0
Storage Bay Dist (ft)	225		200				
Storage Blk Time (%)	0		2	24			
Queuing Penalty (veh)	0		6	39			

Queuing and Blocking Report
Post-Development (2017) with 10th Street Mitigation

7/19/2015

Intersection: 7: 10th Street & I-205 Northbound Ramp

Movement	EB	EB	NB	NB	SB	SB	B19
Directions Served	LT	R	T	R	L	T	T
Maximum Queue (ft)	194	152	221	180	199	318	37
Average Queue (ft)	117	39	164	94	135	101	1
95th Queue (ft)	179	89	244	204	219	264	17
Link Distance (ft)		1148	204			255	218
Upstream Blk Time (%)			5			1	
Queuing Penalty (veh)			27			10	
Storage Bay Dist (ft)	175			130	150		
Storage Blk Time (%)	2	0	19	0	9	1	
Queuing Penalty (veh)	2	0	38	0	33	2	

Intersection: 8: 10th Street & 8th Avenue/8th Court

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	LTR	L	TR
Maximum Queue (ft)	64	32	147	124	149	84	1
Average Queue (ft)	19	11	47	53	24	33	0
95th Queue (ft)	50	33	103	100	85	70	1
Link Distance (ft)	626		355		202		204
Upstream Blk Time (%)					0		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)		200		100		125	
Storage Blk Time (%)			2	1		0	
Queuing Penalty (veh)			3	1		0	

Intersection: 9: Willamette Falls Drive & 10th Street

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	181	113	576	75	96
Average Queue (ft)	81	50	236	31	42
95th Queue (ft)	137	86	569	59	77
Link Distance (ft)		1144	2159		202
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	220			100	
Storage Blk Time (%)	0			0	0
Queuing Penalty (veh)	0			0	0













Zone Summary

Zone wide Queuing Penalty: 330

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















7/19/2015

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	118	501	331	98	474	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	*0.72	*0.72	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (prot)	1881	1583	1274	1317	1787	1599
Flt Permitted	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (perm)	1881	1583	1274	1317	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	134	569	376	111	539	353
RTOR Reduction (vph)	0	134	0	0	0	33
Lane Group Flow (vph)	134	435	241	246	539	320
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	1%	2%	2%	0%	1%	1%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	11.5	66.0	24.4	24.4	65.4	95.3
Effective Green, g (s)	11.5	66.0	24.4	24.4	65.4	95.3
Actuated g/C Ratio	0.10	0.56	0.21	0.21	0.56	0.81
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	183	886	263	272	992	1293
v/s Ratio Prot	c0.07	c0.27	c0.19	0.19	c0.30	0.20
v/s Ratio Perm						
v/c Ratio	0.73	0.49	0.92	0.90	0.54	0.25
Uniform Delay, d1	51.7	15.7	45.7	45.6	16.7	2.7
Progression Factor	1.00	1.00	1.00	1.00	0.42	0.02
Incremental Delay, d2	12.9	0.3	33.6	30.5	0.7	0.0
Delay (s)	64.5	16.0	79.3	76.0	7.7	0.1
Level of Service	E	B	E	E	A	A
Approach Delay (s)	25.2			77.7	4.7	
Approach LOS	C			E	A	
Intersection Summary						
HCM 2000 Control Delay			28.7		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.74			
Actuated Cycle Length (s)			117.8		Sum of lost time (s)	27.5
Intersection Capacity Utilization			53.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	202	4	375	100	402	0	0	613	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frbp, ped/bikes					1.00	1.00	1.00	1.00			0.98	
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	
Frt					1.00	0.85	1.00	1.00			0.96	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1752	1583	1703	1863			3284	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1752	1583	1703	1863			3284	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	224	4	417	111	447	0	0	681	244
RTOR Reduction (vph)	0	0	0	0	0	355	0	0	0	0	30	0
Lane Group Flow (vph)	0	0	0	0	228	62	111	447	0	0	895	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	0%	0%	0%	3%	25%	2%	6%	2%	0%	0%	3%	5%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					17.5	17.5	10.9	31.5			67.4	
Effective Green, g (s)					17.5	17.5	10.9	31.5			67.4	
Actuated g/C Ratio					0.15	0.15	0.09	0.27			0.57	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					260	235	157	498			1878	
v/s Ratio Prot					c0.13		0.07	c0.24			c0.27	
v/s Ratio Perm						0.04						
v/c Ratio					0.88	0.26	0.71	0.90			0.48	
Uniform Delay, d1					49.1	44.4	51.9	41.6			14.8	
Progression Factor					1.00	1.00	1.00	1.00			0.62	
Incremental Delay, d2					26.1	0.4	12.1	19.8			0.1	
Delay (s)					75.2	44.8	64.0	61.4			9.3	
Level of Service					E	D	E	E			A	
Approach Delay (s)		0.0			55.5			61.9			9.3	
Approach LOS		A			E			E			A	
Intersection Summary												
HCM 2000 Control Delay			37.1		HCM 2000 Level of Service						D	
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			117.8		Sum of lost time (s)						27.5	
Intersection Capacity Utilization			55.1%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 12.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	399	57	160	313	49	77	5	51	71	7	5
Conflicting Peds, #/hr	1	0	7	7	0	1	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	3	4	2	1	0	0	0	2	0	0	0
Mvmt Flow	4	424	61	170	333	52	82	5	54	76	7	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	487	0	0	1173	1193	464	1196	1197	368
Stage 1	-	-	-	-	-	-	465	465	-	701	701	-
Stage 2	-	-	-	-	-	-	708	728	-	495	496	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.5	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1183	-	-	1076	-	-	171	188	598	164	187	682
Stage 1	-	-	-	-	-	-	581	566	-	433	444	-
Stage 2	-	-	-	-	-	-	429	432	-	560	549	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1176	-	-	1070	-	-	142	157	594	126	156	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	142	157	-	126	156	-
Stage 1	-	-	-	-	-	-	578	563	-	431	373	-
Stage 2	-	-	-	-	-	-	349	363	-	499	546	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	2.8	56.2	71.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	202	1176	-	-	1070	-	-	135
HCM Lane V/C Ratio	0.7	0.004	-	-	0.159	-	-	0.654
HCM Control Delay (s)	56.2	8.1	-	-	9	-	-	71.8
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	4.4	0	-	-	0.6	-	-	3.5

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	56	451	15	0	364	95	0	0	118	61	7	32
Conflicting Peds, #/hr	0	0	2	7	0	1	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	-	-	-	-	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	2	1	0	0	10	3	3	0	0
Mvmt Flow	59	475	16	0	383	100	0	0	124	64	7	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	485	0	0	493	0	0	1059	1088	492	1038	1045	437
Stage 1	-	-	-	-	-	-	603	603	-	435	435	-
Stage 2	-	-	-	-	-	-	456	485	-	603	610	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.6	6.23	7.13	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4.09	3.327	3.527	4	3.3
Pot Cap-1 Maneuver	1088	-	-	1071	-	-	204	209	575	208	231	624
Stage 1	-	-	-	-	-	-	489	476	-	598	584	-
Stage 2	-	-	-	-	-	-	588	538	-	484	488	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1086	-	-	1065	-	-	180	197	571	155	218	622
Mov Cap-2 Maneuver	-	-	-	-	-	-	180	197	-	155	218	-
Stage 1	-	-	-	-	-	-	462	449	-	565	583	-
Stage 2	-	-	-	-	-	-	548	537	-	356	461	-

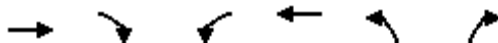
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	13	31.9
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	571	1086	-	-	1065	-	-	155	467
HCM Lane V/C Ratio	0.218	0.054	-	-	-	-	-	0.414	0.088
HCM Control Delay (s)	13	8.5	-	-	0	-	-	43.7	13.5
HCM Lane LOS	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.8	0.2	-	-	0	-	-	1.8	0.3

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive

7/19/2015



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	128	501	331	98	474	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	*0.72	*0.72	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (prot)	1881	1583	1274	1317	1787	1599
Flt Permitted	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (perm)	1881	1583	1274	1317	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	145	569	376	111	539	353
RTOR Reduction (vph)	0	92	0	0	0	37
Lane Group Flow (vph)	145	477	241	246	539	316
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	1%	2%	2%	0%	1%	1%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	12.9	71.7	21.7	21.7	68.4	95.6
Effective Green, g (s)	12.9	71.7	21.7	21.7	68.4	95.6
Actuated g/C Ratio	0.11	0.60	0.18	0.18	0.57	0.80
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	203	949	231	239	1022	1279
v/s Ratio Prot	c0.08	c0.30	c0.19	0.19	c0.30	0.20
v/s Ratio Perm						
v/c Ratio	0.71	0.50	1.04	1.03	0.53	0.25
Uniform Delay, d1	51.5	13.7	48.9	48.9	15.6	3.0
Progression Factor	1.00	1.00	1.00	1.00	0.39	0.00
Incremental Delay, d2	10.1	0.2	71.0	66.0	0.7	0.0
Delay (s)	61.7	13.9	119.9	114.9	6.7	0.0
Level of Service	E	B	F	F	A	A
Approach Delay (s)	23.6			117.4	4.1	
Approach LOS	C			F	A	



















Intersection Summary

HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	119.5	Sum of lost time (s)	27.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	202	4	375	100	402	0	0	613	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frbp, ped/bikes					1.00	1.00	1.00	1.00			0.98	
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	
Frt					1.00	0.85	1.00	1.00			0.96	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1752	1583	1703	1863			3283	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1752	1583	1703	1863			3283	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	224	4	417	111	447	0	0	681	244
RTOR Reduction (vph)	0	0	0	0	0	349	0	0	0	0	28	0
Lane Group Flow (vph)	0	0	0	0	228	68	111	447	0	0	897	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	0%	0%	0%	3%	25%	2%	6%	2%	0%	0%	3%	5%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					19.4	19.4	11.9	33.9			66.2	
Effective Green, g (s)					19.4	19.4	11.9	33.9			66.2	
Actuated g/C Ratio					0.16	0.16	0.10	0.28			0.55	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					284	256	169	528			1818	
v/s Ratio Prot					c0.13		0.07	c0.24			c0.27	
v/s Ratio Perm						0.04						
v/c Ratio					0.80	0.26	0.66	0.85			0.49	
Uniform Delay, d1					48.2	43.8	51.8	40.3			16.4	
Progression Factor					1.00	1.00	1.00	1.00			0.61	
Incremental Delay, d2					14.5	0.3	7.5	13.2			0.1	
Delay (s)					62.7	44.1	59.3	53.6			10.1	
Level of Service					E	D	E	D			B	
Approach Delay (s)		0.0			50.7			54.7			10.1	
Approach LOS		A			D			D			B	
Intersection Summary												
HCM 2000 Control Delay			34.1		HCM 2000 Level of Service						C	
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			119.5		Sum of lost time (s)						27.5	
Intersection Capacity Utilization			55.1%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 13.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	399	57	167	313	49	77	5	51	71	7	5
Conflicting Peds, #/hr	1	0	7	7	0	1	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	3	4	2	1	0	0	0	2	0	0	0
Mvmt Flow	4	424	61	178	333	52	82	5	54	76	7	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	487	0	0	1188	1207	464	1211	1212	368
Stage 1	-	-	-	-	-	-	465	465	-	716	716	-
Stage 2	-	-	-	-	-	-	723	742	-	495	496	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.5	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1183	-	-	1076	-	-	167	185	598	161	184	682
Stage 1	-	-	-	-	-	-	581	566	-	424	437	-
Stage 2	-	-	-	-	-	-	421	425	-	560	549	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1176	-	-	1070	-	-	138	153	594	123	152	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	138	153	-	123	152	-
Stage 1	-	-	-	-	-	-	578	563	-	422	364	-
Stage 2	-	-	-	-	-	-	339	354	-	499	546	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	2.9	59.5	75.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	197	1176	-	-	1070	-	-	132
HCM Lane V/C Ratio	0.718	0.004	-	-	0.166	-	-	0.669
HCM Control Delay (s)	59.5	8.1	-	-	9	-	-	75.1
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	4.6	0	-	-	0.6	-	-	3.6

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	507	15	0	473	95	0	0	118	0	0	39
Conflicting Peds, #/hr	0	0	2	7	0	1	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	2	1	0	0	10	3	3	0	0
Mvmt Flow	0	534	16	0	498	100	0	0	124	0	0	41

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	600	0	0	551	0	0	1094	1144	551	1094	1101	552
Stage 1	-	-	-	-	-	-	544	544	-	550	550	-
Stage 2	-	-	-	-	-	-	550	600	-	544	551	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.6	6.23	7.13	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4.09	3.327	3.527	4	3.3
Pot Cap-1 Maneuver	987	-	-	1019	-	-	193	193	532	191	214	537
Stage 1	-	-	-	-	-	-	527	506	-	518	519	-
Stage 2	-	-	-	-	-	-	523	477	-	521	519	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	985	-	-	1013	-	-	178	192	528	145	213	535
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	192	-	145	213	-
Stage 1	-	-	-	-	-	-	526	505	-	517	518	-
Stage 2	-	-	-	-	-	-	482	476	-	396	518	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	13.9	12.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	528	985	-	-	1013	-	-	535
HCM Lane V/C Ratio	0.235	-	-	-	-	-	-	0.077
HCM Control Delay (s)	13.9	0	-	-	0	-	-	12.3
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	0.2

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















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	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	184	440	392	98	474	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	*0.72	*0.72	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (prot)	1881	1583	1274	1312	1787	1599
Flt Permitted	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (perm)	1881	1583	1274	1312	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	209	500	445	111	539	353
RTOR Reduction (vph)	0	83	0	0	0	16
Lane Group Flow (vph)	209	417	276	280	539	337
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	1%	2%	2%	0%	1%	1%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	12.9	71.6	21.7	21.7	68.3	95.5
Effective Green, g (s)	12.9	71.6	21.7	21.7	68.3	95.5
Actuated g/C Ratio	0.11	0.60	0.18	0.18	0.57	0.80
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	203	949	231	238	1022	1278
v/s Ratio Prot	c0.11	0.26	c0.22	0.21	c0.30	0.21
v/s Ratio Perm						
v/c Ratio	1.03	0.44	1.19	1.18	0.53	0.26
Uniform Delay, d1	53.2	13.0	48.9	48.9	15.7	3.0
Progression Factor	1.00	1.00	1.00	1.00	0.39	0.24
Incremental Delay, d2	71.1	0.2	122.0	114.4	0.7	0.0
Delay (s)	124.3	13.2	170.9	163.3	6.7	0.8
Level of Service	F	B	F	F	A	A
Approach Delay (s)	45.9			167.0	4.4	
Approach LOS	D			F	A	
Intersection Summary						
HCM 2000 Control Delay			60.0		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.82			
Actuated Cycle Length (s)			119.4		Sum of lost time (s)	27.5
Intersection Capacity Utilization			63.1%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	202	4	375	100	402	0	0	613	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frpb, ped/bikes					1.00	1.00	1.00	1.00			0.98	
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	
Frt					1.00	0.85	1.00	1.00			0.96	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1752	1583	1703	1863			3283	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1752	1583	1703	1863			3283	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	224	4	417	111	447	0	0	681	244
RTOR Reduction (vph)	0	0	0	0	0	349	0	0	0	0	28	0
Lane Group Flow (vph)	0	0	0	0	228	68	111	447	0	0	897	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	0%	0%	0%	3%	25%	2%	6%	2%	0%	0%	3%	5%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					19.4	19.4	11.9	33.8			66.1	
Effective Green, g (s)					19.4	19.4	11.9	33.8			66.1	
Actuated g/C Ratio					0.16	0.16	0.10	0.28			0.55	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					284	257	169	527			1817	
v/s Ratio Prot					c0.13		0.07	c0.24			c0.27	
v/s Ratio Perm						0.04						
v/c Ratio					0.80	0.26	0.66	0.85			0.49	
Uniform Delay, d1					48.2	43.8	51.8	40.4			16.4	
Progression Factor					1.00	1.00	1.00	1.00			0.49	
Incremental Delay, d2					14.5	0.3	7.5	13.3			0.1	
Delay (s)					62.6	44.1	59.3	53.7			8.1	
Level of Service					E	D	E	D			A	
Approach Delay (s)		0.0			50.6			54.8			8.1	
Approach LOS		A			D			D			A	
Intersection Summary												
HCM 2000 Control Delay			33.2		HCM 2000 Level of Service						C	
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			119.4		Sum of lost time (s)						27.5	
Intersection Capacity Utilization			55.1%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	5.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	399	57	58	313	49	56	5	51	71	7	5
Conflicting Peds, #/hr	1	0	7	7	0	1	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	3	4	2	1	0	0	0	2	0	0	0
Mvmt Flow	4	424	61	62	333	52	60	5	54	76	7	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	487	0	0	956	976	464	979	980	368
Stage 1	-	-	-	-	-	-	465	465	-	484	484	-
Stage 2	-	-	-	-	-	-	491	511	-	495	496	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.5	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1183	-	-	1076	-	-	240	253	598	231	252	682
Stage 1	-	-	-	-	-	-	581	566	-	568	555	-
Stage 2	-	-	-	-	-	-	563	540	-	560	549	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1176	-	-	1070	-	-	220	237	594	195	236	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	220	237	-	195	236	-
Stage 1	-	-	-	-	-	-	578	563	-	565	522	-
Stage 2	-	-	-	-	-	-	516	508	-	499	546	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.2			23.7			34.7		
HCM LOS							C			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	310	1176	-	-	1070	-	-	207				
HCM Lane V/C Ratio	0.384	0.004	-	-	0.058	-	-	0.427				
HCM Control Delay (s)	23.7	8.1	-	-	8.6	-	-	34.7				
HCM Lane LOS	C	A	-	-	A	-	-	D				
HCM 95th %tile Q(veh)	1.7	0	-	-	0.2	-	-	2				

Intersection

Int Delay, s/veh 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	507	15	109	364	95	21	0	118	0	0	39
Conflicting Peds, #/hr	0	0	2	7	0	1	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	-	0	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	2	1	0	0	10	3	3	0	0
Mvmt Flow	0	534	16	115	383	100	22	0	124	0	0	41

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	485	0	0	551	0	0	1209	1259	551	1209	1216	437
Stage 1	-	-	-	-	-	-	544	544	-	665	665	-
Stage 2	-	-	-	-	-	-	665	715	-	544	551	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.6	6.23	7.13	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4.09	3.327	3.527	4	3.3
Pot Cap-1 Maneuver	1088	-	-	1019	-	-	161	165	532	159	183	624
Stage 1	-	-	-	-	-	-	527	506	-	448	461	-
Stage 2	-	-	-	-	-	-	453	423	-	521	519	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1086	-	-	1013	-	-	137	146	528	110	162	622
Mov Cap-2 Maneuver	-	-	-	-	-	-	137	146	-	110	162	-
Stage 1	-	-	-	-	-	-	526	505	-	447	408	-
Stage 2	-	-	-	-	-	-	374	374	-	396	518	-

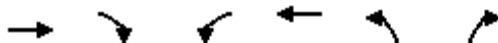
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.7	17.3	11.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	137	528	1086	-	-	1013	-	-	622
HCM Lane V/C Ratio	0.161	0.235	-	-	-	0.113	-	-	0.066
HCM Control Delay (s)	36.3	13.9	0	-	-	9	-	-	11.2
HCM Lane LOS	E	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0.9	0	-	-	0.4	-	-	0.2

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive

7/19/2015





















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	184	440	392	98	474	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	*0.72	*0.72	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (prot)	1881	1583	1274	1312	1787	1599
Flt Permitted	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (perm)	1881	1583	1274	1312	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	209	500	445	111	539	353
RTOR Reduction (vph)	0	83	0	0	0	16
Lane Group Flow (vph)	209	417	276	280	539	337
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	1%	2%	2%	0%	1%	1%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	12.9	71.6	21.7	21.7	68.3	95.5
Effective Green, g (s)	12.9	71.6	21.7	21.7	68.3	95.5
Actuated g/C Ratio	0.11	0.60	0.18	0.18	0.57	0.80
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	203	949	231	238	1022	1278
v/s Ratio Prot	c0.11	0.26	c0.22	0.21	c0.30	0.21
v/s Ratio Perm						
v/c Ratio	1.03	0.44	1.19	1.18	0.53	0.26
Uniform Delay, d1	53.2	13.0	48.9	48.9	15.7	3.0
Progression Factor	1.00	1.00	1.00	1.00	0.39	0.24
Incremental Delay, d2	71.1	0.2	122.0	114.4	0.7	0.0
Delay (s)	124.3	13.2	170.9	163.3	6.7	0.8
Level of Service	F	B	F	F	A	A
Approach Delay (s)	45.9			167.0	4.4	
Approach LOS	D			F	A	
Intersection Summary						
HCM 2000 Control Delay			60.0		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.82			
Actuated Cycle Length (s)			119.4		Sum of lost time (s)	27.5
Intersection Capacity Utilization			63.1%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp

7/19/2015




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	202	4	375	100	402	0	0	613	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frbp, ped/bikes					1.00	1.00	1.00	1.00			0.98	
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	
Frt					1.00	0.85	1.00	1.00			0.96	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1752	1583	1703	1863			3283	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1752	1583	1703	1863			3283	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	224	4	417	111	447	0	0	681	244
RTOR Reduction (vph)	0	0	0	0	0	349	0	0	0	0	28	0
Lane Group Flow (vph)	0	0	0	0	228	68	111	447	0	0	897	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	0%	0%	0%	3%	25%	2%	6%	2%	0%	0%	3%	5%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					19.4	19.4	11.9	33.8			66.1	
Effective Green, g (s)					19.4	19.4	11.9	33.8			66.1	
Actuated g/C Ratio					0.16	0.16	0.10	0.28			0.55	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					284	257	169	527			1817	
v/s Ratio Prot					c0.13		0.07	c0.24			c0.27	
v/s Ratio Perm						0.04						
v/c Ratio					0.80	0.26	0.66	0.85			0.49	
Uniform Delay, d1					48.2	43.8	51.8	40.4			16.4	
Progression Factor					1.00	1.00	1.00	1.00			0.49	
Incremental Delay, d2					14.5	0.3	7.5	13.3			0.1	
Delay (s)					62.6	44.1	59.3	53.7			8.1	
Level of Service					E	D	E	D			A	
Approach Delay (s)		0.0			50.6			54.8			8.1	
Approach LOS		A			D			D			A	
Intersection Summary												
HCM 2000 Control Delay			33.2		HCM 2000 Level of Service						C	
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			119.4		Sum of lost time (s)						27.5	
Intersection Capacity Utilization			55.1%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	399	57	51	313	49	56	5	51	57	7	5
Conflicting Peds, #/hr	1	0	7	7	0	1	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	3	4	2	1	0	0	0	2	0	0	0
Mvmt Flow	4	424	61	54	333	52	60	5	54	61	7	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	487	0	0	941	961	464	965	966	368
Stage 1	-	-	-	-	-	-	465	465	-	470	470	-
Stage 2	-	-	-	-	-	-	476	496	-	495	496	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.5	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1183	-	-	1076	-	-	245	258	598	236	257	682
Stage 1	-	-	-	-	-	-	581	566	-	578	563	-
Stage 2	-	-	-	-	-	-	574	549	-	560	549	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1176	-	-	1070	-	-	226	243	594	201	242	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	226	243	-	201	242	-
Stage 1	-	-	-	-	-	-	578	563	-	575	534	-
Stage 2	-	-	-	-	-	-	530	520	-	499	546	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.1			23.1			30		
HCM LOS							C			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	316	1176	-	-	1070	-	-	216				
HCM Lane V/C Ratio	0.377	0.004	-	-	0.051	-	-	0.34				
HCM Control Delay (s)	23.1	8.1	-	-	8.5	-	-	30				
HCM Lane LOS	C	A	-	-	A	-	-	D				
HCM 95th %tile Q(veh)	1.7	0	-	-	0.2	-	-	1.4				

HCM Signalized Intersection Capacity Analysis

4: Haggen's Site Access/Tannler Drive & Blankenship Road

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	437	15	109	364	95	21	10	108	75	7	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	
Satd. Flow (prot)	1805	1836		1770	1818			1776	1568		1735	
Flt Permitted	0.95	1.00		0.95	1.00			0.81	1.00		0.79	
Satd. Flow (perm)	1805	1836		1770	1818			1480	1568		1410	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	460	16	115	383	100	22	11	114	79	7	34
RTOR Reduction (vph)	0	2	0	0	13	0	0	0	84	0	21	0
Lane Group Flow (vph)	59	474	0	115	470	0	0	33	30	0	99	0
Confl. Peds. (#/hr)			2	7		1	2					
Heavy Vehicles (%)	0%	3%	0%	2%	1%	0%	0%	10%	3%	3%	0%	0%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5		
Permitted Phases									6		2	
Actuated Green, G (s)	2.7	18.5		4.3	20.1			13.5	13.5		13.5	
Effective Green, g (s)	2.7	18.5		4.3	20.1			13.5	13.5		13.5	
Actuated g/C Ratio	0.05	0.36		0.08	0.39			0.26	0.26		0.26	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	95	662		148	712			389	412		371	
v/s Ratio Prot	0.03	0.26		c0.06	c0.26							
v/s Ratio Perm								0.02	0.02		c0.07	
v/c Ratio	0.62	0.72		0.78	0.66			0.08	0.07		0.27	
Uniform Delay, d1	23.8	14.1		23.0	12.8			14.2	14.2		15.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	12.0	3.7		22.2	2.3			0.1	0.1		0.4	
Delay (s)	35.8	17.8		45.2	15.1			14.3	14.3		15.4	
Level of Service	D	B		D	B			B	B		B	
Approach Delay (s)		19.8			20.9			14.3			15.4	
Approach LOS		B			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			19.3			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			51.3			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			55.6%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive



















7/19/2015

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	118	501	331	98	474	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	*0.72	*0.72	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (prot)	1881	1583	1274	1317	1787	1599
Flt Permitted	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (perm)	1881	1583	1274	1317	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	134	569	376	111	539	353
RTOR Reduction (vph)	0	92	0	0	0	43
Lane Group Flow (vph)	134	477	241	246	539	310
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	1%	2%	2%	0%	1%	1%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	12.9	71.7	21.7	21.7	68.4	95.6
Effective Green, g (s)	12.9	71.7	21.7	21.7	68.4	95.6
Actuated g/C Ratio	0.11	0.60	0.18	0.18	0.57	0.80
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	203	949	231	239	1022	1279
v/s Ratio Prot	c0.07	c0.30	c0.19	0.19	c0.30	0.19
v/s Ratio Perm						
v/c Ratio	0.66	0.50	1.04	1.03	0.53	0.24
Uniform Delay, d1	51.2	13.7	48.9	48.9	15.6	3.0
Progression Factor	1.00	1.00	1.00	1.00	0.39	0.00
Incremental Delay, d2	6.7	0.2	71.0	66.0	0.7	0.0
Delay (s)	57.9	13.9	119.9	114.9	6.7	0.0
Level of Service	E	B	F	F	A	A
Approach Delay (s)	22.3			117.4	4.1	
Approach LOS	C			F	A	
Intersection Summary						
HCM 2000 Control Delay			36.7		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.74			
Actuated Cycle Length (s)			119.5		Sum of lost time (s)	27.5
Intersection Capacity Utilization			53.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp



















7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	202	4	375	100	402	0	0	613	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frpb, ped/bikes					1.00	1.00	1.00	1.00			0.98	
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	
Frt					1.00	0.85	1.00	1.00			0.96	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1752	1583	1703	1863			3283	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1752	1583	1703	1863			3283	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	224	4	417	111	447	0	0	681	244
RTOR Reduction (vph)	0	0	0	0	0	349	0	0	0	0	28	0
Lane Group Flow (vph)	0	0	0	0	228	68	111	447	0	0	897	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	0%	0%	0%	3%	25%	2%	6%	2%	0%	0%	3%	5%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					19.4	19.4	11.9	33.9			66.2	
Effective Green, g (s)					19.4	19.4	11.9	33.9			66.2	
Actuated g/C Ratio					0.16	0.16	0.10	0.28			0.55	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					284	256	169	528			1818	
v/s Ratio Prot					c0.13		0.07	c0.24			c0.27	
v/s Ratio Perm						0.04						
v/c Ratio					0.80	0.26	0.66	0.85			0.49	
Uniform Delay, d1					48.2	43.8	51.8	40.3			16.4	
Progression Factor					1.00	1.00	1.00	1.00			0.61	
Incremental Delay, d2					14.5	0.3	7.5	13.2			0.1	
Delay (s)					62.7	44.1	59.3	53.6			10.1	
Level of Service					E	D	E	D			B	
Approach Delay (s)		0.0			50.7			54.7			10.1	
Approach LOS		A			D			D			B	
Intersection Summary												
HCM 2000 Control Delay			34.1									
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			119.5								27.5	
Intersection Capacity Utilization			55.1%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Haggen's Access/Site Access & Blankenship Road

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	399	57	160	313	49	77	5	51	71	7	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.98			0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)	1803	1800		1770	1840			1719			1801	
Flt Permitted	0.95	1.00		0.95	1.00			0.80			0.71	
Satd. Flow (perm)	1803	1800		1770	1840			1419			1338	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	4	424	61	170	333	52	82	5	54	76	7	5
RTOR Reduction (vph)	0	8	0	0	8	0	0	28	0	0	3	0
Lane Group Flow (vph)	4	477	0	170	377	0	0	113	0	0	85	0
Confl. Peds. (#/hr)	1		7	7		1	2		2	2		2
Heavy Vehicles (%)	0%	3%	4%	2%	1%	0%	0%	0%	2%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.8	20.0		6.0	25.2			17.0			17.0	
Effective Green, g (s)	0.8	20.0		6.0	25.2			17.0			17.0	
Actuated g/C Ratio	0.01	0.36		0.11	0.46			0.31			0.31	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	26	654		193	843			438			413	
v/s Ratio Prot	0.00	c0.27		c0.10	0.21							
v/s Ratio Perm								c0.08			0.06	
v/c Ratio	0.15	0.73		0.88	0.45			0.26			0.21	
Uniform Delay, d1	26.8	15.2		24.1	10.2			14.3			14.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.7	4.1		34.1	0.4			0.3			0.2	
Delay (s)	29.5	19.2		58.2	10.5			14.6			14.3	
Level of Service	C	B		E	B			B			B	
Approach Delay (s)		19.3			25.1			14.6			14.3	
Approach LOS		B			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			21.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			55.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			51.3%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	56	451	15	0	364	95	0	0	118	61	7	32
Conflicting Peds, #/hr	0	0	2	7	0	1	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	-	-	-	-	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	2	1	0	0	10	3	3	0	0
Mvmt Flow	59	475	16	0	383	100	0	0	124	64	7	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	485	0	0	493	0	0	1059	1088	492	1038	1045	437
Stage 1	-	-	-	-	-	-	603	603	-	435	435	-
Stage 2	-	-	-	-	-	-	456	485	-	603	610	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.6	6.23	7.13	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.6	-	6.13	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4.09	3.327	3.527	4	3.3
Pot Cap-1 Maneuver	1088	-	-	1071	-	-	204	209	575	208	231	624
Stage 1	-	-	-	-	-	-	489	476	-	598	584	-
Stage 2	-	-	-	-	-	-	588	538	-	484	488	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1086	-	-	1065	-	-	180	197	571	155	218	622
Mov Cap-2 Maneuver	-	-	-	-	-	-	180	197	-	155	218	-
Stage 1	-	-	-	-	-	-	462	449	-	565	583	-
Stage 2	-	-	-	-	-	-	548	537	-	356	461	-

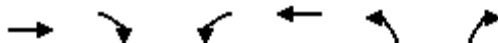
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	13	31.9
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	571	1086	-	-	1065	-	-	155	467
HCM Lane V/C Ratio	0.218	0.054	-	-	-	-	-	0.414	0.088
HCM Control Delay (s)	13	8.5	-	-	0	-	-	43.7	13.5
HCM Lane LOS	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.8	0.2	-	-	0	-	-	1.8	0.3

HCM Signalized Intersection Capacity Analysis

5: 10th Street & Blankenship Road/Salamo Drive

7/19/2015



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	128	501	331	98	474	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	*0.72	*0.72	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (prot)	1881	1583	1274	1317	1787	1599
Flt Permitted	1.00	1.00	0.95	0.97	0.95	1.00
Satd. Flow (perm)	1881	1583	1274	1317	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	145	569	376	111	539	353
RTOR Reduction (vph)	0	92	0	0	0	37
Lane Group Flow (vph)	145	477	241	246	539	316
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	1%	2%	2%	0%	1%	1%
Turn Type	NA	custom	Split	NA	Prot	custom
Protected Phases	4	4 5 7	3	3	5 6 7	3 5 6 7
Permitted Phases		4				5 6 7
Actuated Green, G (s)	12.9	71.7	21.7	21.7	68.4	95.6
Effective Green, g (s)	12.9	71.7	21.7	21.7	68.4	95.6
Actuated g/C Ratio	0.11	0.60	0.18	0.18	0.57	0.80
Clearance Time (s)	5.5		5.5	5.5		
Vehicle Extension (s)	2.3		2.3	2.3		
Lane Grp Cap (vph)	203	949	231	239	1022	1279
v/s Ratio Prot	c0.08	c0.30	c0.19	0.19	c0.30	0.20
v/s Ratio Perm						
v/c Ratio	0.71	0.50	1.04	1.03	0.53	0.25
Uniform Delay, d1	51.5	13.7	48.9	48.9	15.6	3.0
Progression Factor	1.00	1.00	1.00	1.00	0.39	0.00
Incremental Delay, d2	10.1	0.2	71.0	66.0	0.7	0.0
Delay (s)	61.7	13.9	119.9	114.9	6.7	0.0
Level of Service	E	B	F	F	A	A
Approach Delay (s)	23.6			117.4	4.1	
Approach LOS	C			F	A	


Intersection Summary

HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	119.5	Sum of lost time (s)	27.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

6: 10th Street & I-205 Southbound Ramp

7/19/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↶	↶	↶	↶			↶↷	
Volume (vph)	0	0	0	202	4	375	100	402	0	0	613	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5	5.5	5.5			5.5	
Lane Util. Factor					1.00	1.00	1.00	1.00			0.95	
Frpb, ped/bikes					1.00	1.00	1.00	1.00			0.98	
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	
Frt					1.00	0.85	1.00	1.00			0.96	
Flt Protected					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					1752	1583	1703	1863			3283	
Flt Permitted					0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)					1752	1583	1703	1863			3283	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	224	4	417	111	447	0	0	681	244
RTOR Reduction (vph)	0	0	0	0	0	349	0	0	0	0	28	0
Lane Group Flow (vph)	0	0	0	0	228	68	111	447	0	0	897	0
Confl. Peds. (#/hr)							15					15
Heavy Vehicles (%)	0%	0%	0%	3%	25%	2%	6%	2%	0%	0%	3%	5%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				7	7		1	5			2 3 4	
Permitted Phases						7						
Actuated Green, G (s)					19.4	19.4	11.9	33.9			66.2	
Effective Green, g (s)					19.4	19.4	11.9	33.9			66.2	
Actuated g/C Ratio					0.16	0.16	0.10	0.28			0.55	
Clearance Time (s)					5.5	5.5	5.5	5.5				
Vehicle Extension (s)					2.3	2.3	2.3	5.2				
Lane Grp Cap (vph)					284	256	169	528			1818	
v/s Ratio Prot					c0.13		0.07	c0.24			c0.27	
v/s Ratio Perm						0.04						
v/c Ratio					0.80	0.26	0.66	0.85			0.49	
Uniform Delay, d1					48.2	43.8	51.8	40.3			16.4	
Progression Factor					1.00	1.00	1.00	1.00			0.61	
Incremental Delay, d2					14.5	0.3	7.5	13.2			0.1	
Delay (s)					62.7	44.1	59.3	53.6			10.1	
Level of Service					E	D	E	D			B	
Approach Delay (s)		0.0			50.7			54.7			10.1	
Approach LOS		A			D			D			B	
Intersection Summary												
HCM 2000 Control Delay			34.1		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			119.5		Sum of lost time (s)				27.5			
Intersection Capacity Utilization			55.1%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

Queuing and Blocking Report
Post-Development (2017) with 10th Street Mitigation

7/19/2015

Intersection: 1: Tannler Drive & North Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	53
Average Queue (ft)	15	6
95th Queue (ft)	38	29
Link Distance (ft)	286	845
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: 13th Street & Blankenship Road

Movement	SB	SE	NW
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	72	64	6
Average Queue (ft)	24	5	0
95th Queue (ft)	50	30	4
Link Distance (ft)	405	161	88
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Haggen's Access/Site Access & Blankenship Road

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	30	38	51	28	140	84
Average Queue (ft)	2	1	18	1	49	42
95th Queue (ft)	12	17	45	12	98	73
Link Distance (ft)		270		274	307	450
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	50		50			
Storage Blk Time (%)		0	0	0		
Queuing Penalty (veh)		0	1	0		

Queuing and Blocking Report
Post-Development (2017) with 10th Street Mitigation

7/19/2015

Intersection: 4: Haggen's Site Access/Tannler Drive & Blankenship Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	L	TR
Maximum Queue (ft)	51	158	76	15	69	121	126	61
Average Queue (ft)	17	9	25	1	27	47	42	22
95th Queue (ft)	42	68	56	7	61	88	94	48
Link Distance (ft)		274		242	284	284		845
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	50		150				150	
Storage Blk Time (%)	1	1					0	
Queuing Penalty (veh)	3	1					0	

Intersection: 5: 10th Street & Blankenship Road/Salamo Drive

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	LT	L	R
Maximum Queue (ft)	251	200	230	291	158	175
Average Queue (ft)	98	93	137	147	82	8
95th Queue (ft)	192	182	216	243	143	63
Link Distance (ft)	242			1332		171
Upstream Blk Time (%)	1				0	0
Queuing Penalty (veh)	9				0	2
Storage Bay Dist (ft)		100	200		150	
Storage Blk Time (%)	15	4	1	2	1	0
Queuing Penalty (veh)	79	5	3	4	2	1

Intersection: 6: 10th Street & I-205 Southbound Ramp

Movement	WB	WB	NB	NB	B19	SB	SB
Directions Served	LT	R	L	T	T	T	TR
Maximum Queue (ft)	261	252	228	315	218	180	200
Average Queue (ft)	141	115	119	232	42	83	42
95th Queue (ft)	229	200	243	352	176	152	119
Link Distance (ft)		2045		228	244	171	171
Upstream Blk Time (%)			0	16	2	1	0
Queuing Penalty (veh)			0	84	13	2	1
Storage Bay Dist (ft)	225		200				
Storage Blk Time (%)	1	1	0	22			
Queuing Penalty (veh)	5	1	1	22			

Queuing and Blocking Report
Post-Development (2017) with 10th Street Mitigation

7/19/2015

Intersection: 7: 10th Street & I-205 Northbound Ramp

Movement	EB	EB	NB	NB	SB	SB	B19
Directions Served	LT	R	T	R	L	T	T
Maximum Queue (ft)	157	92	213	179	199	326	194
Average Queue (ft)	74	24	108	80	139	120	17
95th Queue (ft)	133	59	189	160	211	277	112
Link Distance (ft)		1148	204			244	228
Upstream Blk Time (%)			1			3	1
Queuing Penalty (veh)			10			29	4
Storage Bay Dist (ft)	175			130	150		
Storage Blk Time (%)	0	0	4	1	10	1	
Queuing Penalty (veh)	0	0	16	4	56	4	

Intersection: 8: 10th Street & 8th Avenue/8th Court

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	LTR	L	TR
Maximum Queue (ft)	458	250	164	125	166	78	29
Average Queue (ft)	173	61	46	53	33	30	1
95th Queue (ft)	454	190	123	108	111	61	14
Link Distance (ft)	626		355		202		204
Upstream Blk Time (%)	5				0		
Queuing Penalty (veh)	0				2		
Storage Bay Dist (ft)		200		100		125	
Storage Blk Time (%)	24		1	5			
Queuing Penalty (veh)	11		2	2			

Intersection: 9: Willamette Falls Drive & 10th Street

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	270	646	185	103	125
Average Queue (ft)	139	174	85	49	50
95th Queue (ft)	265	468	148	87	99
Link Distance (ft)		1144	2159		202
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		0			
Storage Bay Dist (ft)	220			100	
Storage Blk Time (%)	7	7		0	1
Queuing Penalty (veh)	32	27		1	1

Zone Summary

Zone wide Queuing Penalty: 441

PC-5

LETTER FROM TUALATIN VALLEY FIRE AND RESCUE

Pelz, Zach

From: Darby, Ty M. <Ty.Darby@tvfr.com>
Sent: Thursday, July 30, 2015 9:24 AM
To: Gary Alfson
Subject: RE: West Linn Fire Info
Attachments: 2015-07-29 West Linn Fire Apparatus Plans.pdf

Gary,

The revised site plan is acceptable to the Fire District.

Thank you.

Ty Darby | Deputy Fire Marshal
Tualatin Valley Fire & Rescue
Direct: 503-259-1409
www.tvfr.com

-----Original Message-----

From: Gary Alfson [<mailto:gary.alfson@otak.com>]
Sent: Thursday, July 30, 2015 7:59 AM
To: Darby, Ty M.
Subject: Fwd: West Linn Fire Info

Attached revised plan and section.

Sent from my iPhone

Begin forwarded message:

From: "Nate Erwin" <nate.erwin@otak.com<<mailto:nate.erwin@otak.com>>>
To: "Gary Alfson" <gary.alfson@otak.com<<mailto:gary.alfson@otak.com>>>
Cc: "Brad Swearingen" <Brad.Swearingen@otak.com<<mailto:Brad.Swearingen@otak.com>>>, "Pete Miller" <pete.miller@otak.com<<mailto:pete.miller@otak.com>>>, "Ron Dean" <ron.dean@otak.com<<mailto:ron.dean@otak.com>>>
Subject: West Linn Fire Info

Hi all,

Attached is an updated PDF based on the redlines Pete gave me this afternoon.

Thanks
Nate

Nathan Erwin | Architecture Intern
808 SW 3rd Ave., Suite 300, Portland, OR 97204.

Direct: 503.415.2363

Email: nate.erwin@otak.com

www.otak.com<<http://www.otak.com/>>

PC-6

**CITY AND OREGON DEPARTMENT OF TRANSPORTATION
RESPONSE TO PROPOSED TRAFFIC MITIGATION**



Oregon

Kate Brown, Governor

Department of Transportation

Region 1 Headquarters
123 NW Flanders Street
Portland, Oregon 97209
(503) 731.8200
FAX (503) 731.8259

August 11, 2015

ODOT #6640

ODOT Response

Project Name: Tannler Development	Applicant: Rob Morgan, ConAM
Jurisdiction: City of West Linn	Jurisdiction Case #: PA-15-23
Site Address: 2442, 2422, 2410 Tannler Drive, West Linn, OR	Legal Description: 21E35C Tax Lot(s): 00100, 00102, 00200
State Highway: I-205/10 th Street Interchange	Mileposts: N/A

In response to ODOT's review of the Traffic Impact Analysis (TIA), dated July 20th, the site is in the vicinity of I-205/10th Street Interchange. ODOT has permitting authority for this facility and an interest in ensuring that this proposed land use is compatible with its safe and efficient operation.

According to Mackenzie's TIA, dated July 20, 2015, the 10th Street/Blankenship Road/Salamo Road intersection is expected to exceed ODOT's volume-to-capacity standard. The intersection is currently operating below ODOT standard, with addition of background and in process traffic it is expected to operate at the limit 0.85. The additional trips of the proposed development will cause the intersection to operate at 0.89, above ODOT's mobility standard. The 95th percentile queues appear to be exceeding their storage as well. In addition, the intersection of the 10th Street/8th Avenue/8th Court will operate above ODOT standards above the AM/PM peak hour as well.

ODOT does not support the installation of a new traffic signal at the Blankenship Road/Tannler Drive intersection. A signal at this location is too close to the Blankenship Road/10th Street/Salamo Drive intersection and presents operational, queuing, and safety risks.

Furthermore, ODOT does not support the proposed mitigation to restripe the westbound through lane on the Salamo Drive approach with a shared through/left lane. This would require modifying existing signal time operation which does not constitute mitigation for the proposed development impact.

Lastly, the City of West Linn is currently in the process of updating their Transportation System Plan (TSP) where the I-205/10th Avenue corridor is under review/recommendation for future improvements.

Please send a copy of the Notice of Decision including conditions of approval to:

ODOT Region 1 Planning
Development Review
123 NW Flanders St
Portland, OR 97209
Region1_DEVREV_Applications@odot.state.or.us

Development Review Planner: Joshua Brooking	503.731.3049, joshua.c.brooking@odot.state.or.us
Traffic Contact: Avi Tayar, P.E.	503.731.8221

PC-7

**CONFIRMATION OF ADEQUATE SEWER AND WATER
CAPACITY**

Pelz, Zach

From: Le, Khoi
Sent: Wednesday, August 12, 2015 2:28 PM
To: Pelz, Zach
Subject: DR-15-11 Tannler Dr Mixed Use Development - Municipal Water and Sanitary Sewer

Zach-

All submitted plans have been reviewed by the City of West Linn Engineering. The proposed development is to be served from Bland water pressure zone as recommended by the City Water System Consultant, Murray Smith and Associates (MSA). The proposed 8" water main extension from the existing water main at Green St is in accordance with MSA's recommendation. The improvement is satisfactory and will allow the development to be served with sufficient volume, capacity, and pressure for fire flows as required.

Existing City sanitary sewer system has sufficient capacity to serve the proposed development.

Let me know if you have any questions or comments.

Thanks,
Khoi

Khoi Le, Civil Engineer II
Public Works, #1517



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PC-8

PUBLIC COMMENTS

Shroyer, Shauna

From: Wyss, Darren
Sent: Monday, August 10, 2015 8:48 AM
To: Pelz, Zach
Subject: FW: West Linn Contact Us Form

Darren Wyss
Associate Planner
Email: dwyss@westlinnoregon.gov, #1512
<http://westlinnoregon.gov>

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-----Original Message-----

From: Hall, Lori
Sent: Monday, August 10, 2015 8:43 AM
To: Kerr, Chris; Wyss, Darren
Subject: FW: West Linn Contact Us Form

Lori Hall
Citizen Engagement Coordinator
Email: LHALL@westlinnoregon.gov, #1525
<http://westlinnoregon.gov>

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This e-mail is subject to the State Retention Schedule and may be made available to the public.

-----Original Message-----

From: Joan Dingle [<mailto:webmaster@westlinnoregon.gov>]
Sent: Sunday, August 09, 2015 9:45 AM
To: Hall, Lori <LHALL@westlinnoregon.gov>
Subject: West Linn Contact Us Form

Submitted on Sunday, August 9, 2015 - 9:45am Submitted by user:
Submitted values are:

--CONTACT INFORMATION--

Full Name: Joan Dingle
Email: callander3@comcast.net
Phone Number: 5037228091

Street Address: 1945 Haverhill Way

Question/Comment: I am opposed to the proposed apartment buildings in West Linn off Blankenship. We do not have the infra structure, i.e. schools, local businesses for employment, etc. to make this a healthy investment for West Linn.

Shroyer, Shauna

From: Jordan, Chris
Sent: Wednesday, August 05, 2015 3:20 PM
To: Robinson, Michael C. (Perkins Coie) (MRobinson@perkinscoie.com); Kerr, Chris; Pelz, Zach; Boyd, John
Subject: FW: SONA Minutes for Posting
Attachments: SONA Meeting Minutes - 07-07-15.pdf

FYI -- if you have not already received this.

Chris Jordan, City Manager
Administration, #1422



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From: Hall, Lori
Sent: Wednesday, August 05, 2015 2:08 PM
To: City Council
Subject: FW: SONA Minutes for Posting

Lori Hall, Citizen Engagement Coordinator
Administration, #1525



Please consider the impact on the environment before printing a paper copy of this email.
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From: Savanna Oaks Neighborhood Association
Sent: Wednesday, August 05, 2015 2:00 PM
To: Hall, Lori <LHALL@westlinnoregon.gov>
Cc: Webmaster <webmaster@westlinnoregon.gov>
Subject: SONA Minutes for Posting

Lori,

Please find attached the July 2015 Savanna Oaks NA minutes for posting on the city web site.

Thanks.

Regards,

Ed Schwarz, President
Savanna Oaks Neighborhood Association

Savanna Oaks

SavannaOaksNA@westlinnoregon.gov

<http://westlinnoregon.gov/savannaoaks>

Phone(503) 657-0331



West Linn

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Savanna Oaks Neighborhood Association Meeting

July 7, 2015

7:00 PM

Minutes

The meeting was called to order at 7:00 By SONA Vice President, Ken Pryor

In attendance were 19 members of SONA and 13 guests from other NAs plus Mr. Robinson (attorney) and Mr. Morgan of Con Am. Their contact information is below:

Rob Morgan rmorgan@conam.com, Michael Robinson mrobinson@perkinscoie.com

Meeting minutes from the June 2, 2015 meeting were approved with a unanimous vote.

The Treasurer, Patrick McGuire, relayed, by email, the information that the SONA balance remains unchanged at \$2,176.33.

Old Business:

1. An update was given by Roberta Schwarz on the White Oak Savanna fundraising and upcoming events.

New Business:

1. A presentation was made by the two representatives listed above about ConAm's application proposal for a mixed use commercial/multifamily project on approximately 10.1 acres on the west side of Tannler Dr. The proposed project will include 192 apartments and some OBC (Office Business Center) with 354 parking spaces. A question and answer format was used after a brief presentation by Mr. Morgan. A meeting with the Willamette NA is scheduled for 7 pm on July 8 at the Pacific West Bank.
2. A final announcement for the July 12 Ice Cream Social was made. Volunteers for this fun annual event were requested.
3. Volunteers were also requested for a West Linn City committee to discuss what to do with "surplus" West Linn property. Two people expressed an interest and their names and contact information will be forwarded to the appropriate person.

There being no further business, the meeting was adjourned at approximately 8:10 pm.

Shroyer, Shauna

From: Robinson, Michael C. (Perkins Coie) <MRobinson@perkinscoie.com>
Sent: Tuesday, August 04, 2015 8:02 AM
To: Roberta Schwarz; rmorgan@conam.com; 'Mike Mahoney (mmahoney@conam.com)'; Pelz, Zach; Kerr, Chris
Cc: Schwarz, Ed
Subject: RE: Hello Mr. Robinson

Roberta, here are the answers to your questions based on the information that I have today:

1. Mr. Parker's 1.2 acre lot is not part of the ConAm application. His property is zoned OBC and CDC Chapter 21 describes the allowed uses for OBC zoned property.

2. ConAm has reduced the unit count from 192 units to 180 units. The bedroom count is as follows;

1 bedroom: 61

2 bedroom: 97

3 bedroom: 22

Total unit count: 180

3. The traffic impact analysis, which is posted to the City's website with the rest of the ConAm application, describes the proposed mitigation.

4. This question is irrelevant to the ConAm application but the City's files on the "red tape" ordinance are available for public inspection.

Is SONA planning on a presentation on the application from me tonight, or will the agenda item on the ConAm application be only for a vote on SONA's recommendation on the application?

Michael C. Robinson | Perkins Coie LLP

PARTNER

1120 N.W. Couch Street Tenth Floor

Portland, OR 97209-4128

D. +1.503.727.2264

C. +1.503.407.2578

F. +1.503.346.2264

E. MRobinson@perkinscoie.com



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in Litigation - Land Use & Zoning by
U.S. News – Best Lawyers® "Best Law Firms"

From: Roberta Schwarz [mailto:roberta.schwarz@comcast.net]
Sent: Monday, August 03, 2015 9:51 AM
To: Robinson, Michael C. (Perkins Coie)
Subject: Hello Mr. Robinson

Hello Mr. Robinson,

I have a few questions for you from the neighbors since you invited us to email them when they come up:

#1 What is Mr. Parker planning to do with his 1 plus acres? We have still not heard back from his representative.

#2 How many one, two, and three bedroom apartments will there be in this proposed development?

#3 How are the applicants going to mitigate for traffic?

#4 Did you help write/ contribute in any way to the "Red Tape" code amendments in West Linn?

Thanks so much,

Roberta Schwarz

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Shroyer, Shauna

From: Ed Schwarz <ed.schwarz@gmail.com>
Sent: Tuesday, August 04, 2015 8:55 AM
To: 'Robinson, Michael C. (Perkins Coie)'; 'Roberta Schwarz'; rmorgan@conam.com; 'Mike Mahoney'; Pelz, Zach; Kerr, Chris
Subject: RE: Hello Mr. Robinson

Mike,

Thanks for the information you provided with the updated unit count, etc.

At tonight's meeting we plan to simply provide a brief update to SONA members including the information you provided below. We do not anticipate taking a vote on a recommendation at tonight's meeting. Your presence is not necessary.

Thanks.

Ed

From: Robinson, Michael C. (Perkins Coie) [mailto:MRobinson@perkinscoie.com]
Sent: Tuesday, August 04, 2015 8:02 AM
To: Roberta Schwarz <roberta.schwarz@comcast.net>; rmorgan@conam.com; 'Mike Mahoney (mmahoney@conam.com)' <mmahoney@conam.com>; Pelz, Zach <ZPELZ@westlinnoregon.gov>; Kerr, Chris <ckerr@westlinnoregon.gov>
Cc: Ed Schwarz (ed.schwarz@gmail.com) <ed.schwarz@gmail.com>
Subject: RE: Hello Mr. Robinson

Roberta, here are the answers to your questions based on the information that I have today:

1. Mr. Parker's 1.2 acre lot is not part of the ConAm application. His property is zoned OBC and CDC Chapter 21 describes the allowed uses for OBC zoned property.

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Michael C. Robinson | Perkins Coie LLP
PARTNER
1120 N.W. Couch Street Tenth Floor
Portland, OR 97209-4128

D. +1.503.727.2264
C. +1.503.407.2578
F. +1.503.346.2264
E. MRobinson@perkinscoie.com



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in Litigation - Land Use & Zoning by
U.S. News – Best Lawyers® "Best Law Firms"

From: Roberta Schwarz [<mailto:roberta.schwarz@comcast.net>]
Sent: Monday, August 03, 2015 9:51 AM
To: Robinson, Michael C. (Perkins Coie)
Subject: Hello Mr. Robinson

Hello Mr. Robinson,

I have a few questions for you from the neighbors since you invited us to email them when they come up:

- #1 What is Mr. Parker planning to do with his 1 plus acres? We have still not heard back from his representative.
- #2 How many one, two, and three bedroom apartments will there be in this proposed development?
- #3 How are the applicants going to mitigate for traffic?
- #4 Did you help write/ contribute in any way to the "Red Tape" code amendments in West Linn?

Thanks so much,
Roberta Schwarz

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Shroyer, Shauna

From: Kerr, Chris
Sent: Thursday, July 30, 2015 3:11 PM
To: Pelz, Zach; Boyd, John
Subject: FW: Ex parte
Attachments: IMG_4442.JPG; ATT00001.txt; IMG_4443.JPG; ATT00002.txt; IMG_4444.JPG; ATT00003.txt

For file

Chris Kerr, Community Development Director
Community Development, #1538



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From: Frank, Thomas
Sent: Thursday, July 30, 2015 2:47 PM
To: Thornton, Megan; Wyatt, Kirsten; Kerr, Chris; Jordan, Chris
Subject: Ex parte

Thomas Frank
West Linn City Councilor
22500 Salamo Rd
West Linn, OR 97068
tfrank@westlinnoregon.gov
westlinnoregon.gov
Phone(503) 657-0331



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Please read this – it affects our neighborhood!

Tannler Drive Revisited – 192 Hi-density Apartment + 8 Business units

Old Proposal

200+ Apartments were previous proposed for rezoning to allow residential in what is zoned OBC (Office Business Center) that was denied by the City Council.

New Proposal

192 apartments and 8 OBC (Office Business Center) are now four stories high.
192 units – and 8 Business unit – will be “Coded” as OBC (Office Business Center)

Concerns that affect West Linn- we want you to be aware of

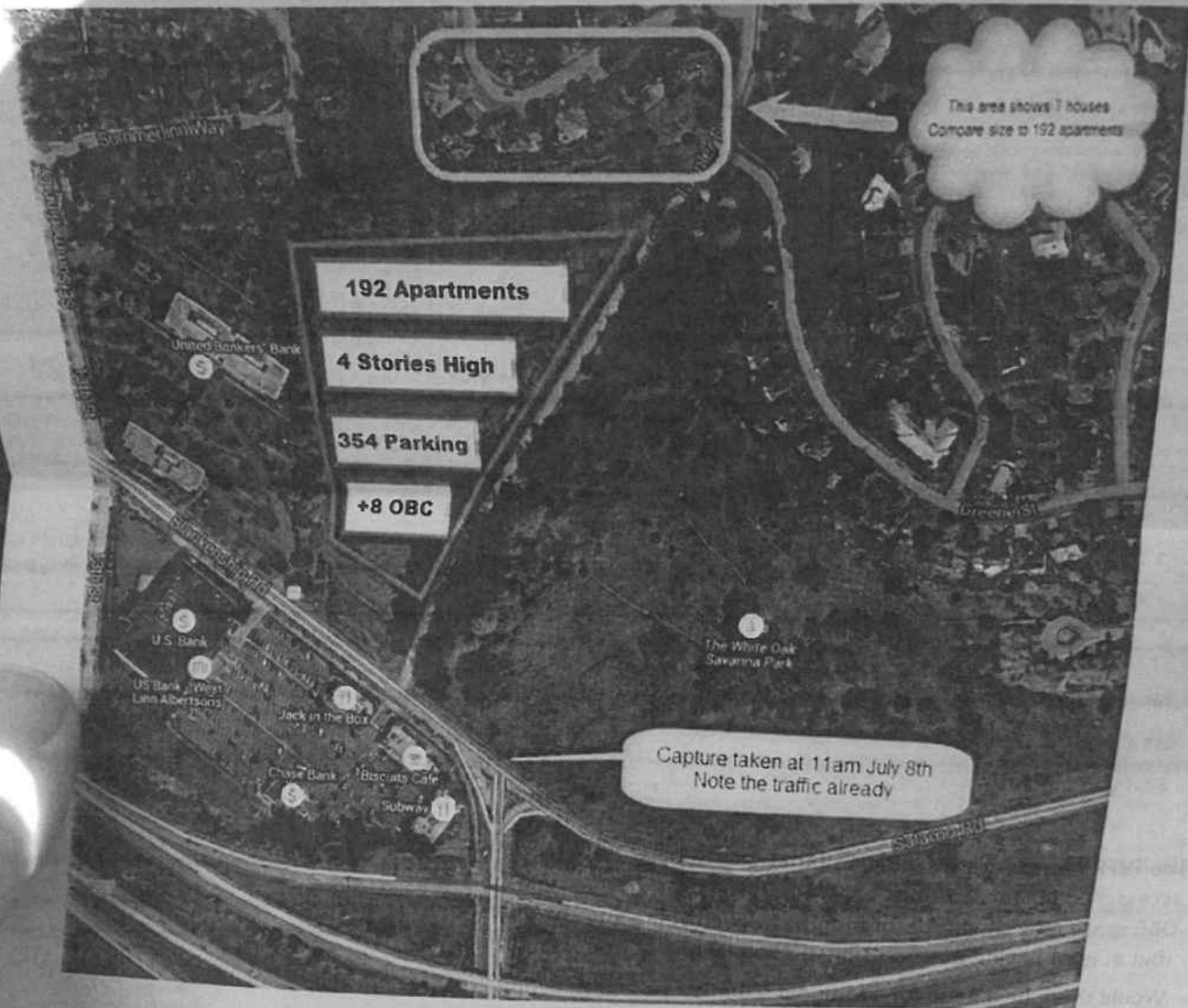
Proposal to build 192 - 1, 2 and 3 bedroom units

- If we assume an average of 2.5 people per unit – that’s approximately 500 people
- Rough numbers of about 400 cars or more for only 354 parking spots
- Many of the “parking spots are garage spaces” – parking or storage?
- That’s not including for the “business” or visitors or staff or reserved spots
- Can you imagine 50+ cars parked on Tannler?
- The TVFR representative indicated that 3 entrances would be required for 200 apartments for safety and access. “Code” for 192 units only requires 2.
- OBC space may sit vacant for months or even years and the apartments can still be built and occupied. (But at least having Business units – changes the “Code” requirement)
- Would there be a need for additional schools – possibly costing West Linn millions of dollars?
- ConAm (the developer) has stated on the record that they sometimes walk away after the apartments are finished and it is sold to someone else.
- What does Mr. Parker plan to do with his 1.2 acres? Mr. Parker’s representative has not responded to an email asking the question.
- What will be the effect on Savana Oaks Park across from the 192 apartments?
- Traffic will most likely be restricted from turning left off of Tannler onto Blankenship Rd.
- West Linn only has two I-205 on-ramps and off-ramps. The traffic generated by this development will adversely affect one of them and the surrounding neighborhood as well.

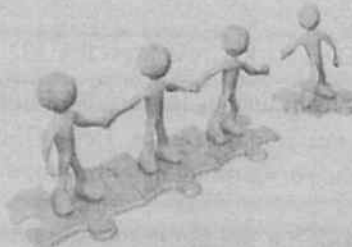
This re-application appears to be an end run around the denial this applicant received to do a zoning change from OBC to Multi Family Residential.

This appears to be on a fast track before the TSP (Transportation Safety Plan) is completed in October 2015.

This is a ROUGH layout of the proposal that we have been informed of so far.



Please come and attend your neighborhood meetings – we all need to be heard or decisions will be made without your input.



Stay in the loop – Send an email TheLatest192@gmail.com to be added to future updates regarding this development.

A suggested donation of \$50 from your family for the fund to pay for professional experts to help us be heard!

All content provided here is for informational purposes only. No representation as to the accuracy or completeness of this information.

Your Neighbor
2206 Tanner Drive
West Linn, OR 97068

MCKENZIE A GREGORY & SUSAN
1470 ROSEMONT RD
WEST LINN, OR 97068

9706832931 0002



NONPROFIT ORG
US POSTAGE
PAID
PORTLAND OR
PERMIT NO 613

Boyd, John

From: Axelrod, Russell
Sent: Monday, July 27, 2015 9:59 AM
To: Boyd, John
Cc: Mollusky, Kathy
Subject: FW: Tannler Drive complex building

Forwarding ex-parte contact from citizen. Russ

Russell Axelrod

Mayor

22500 Salamo Rd

West Linn, OR 97068

raxelrod@westlinnoregon.gov

westlinnoregon.gov

Phone(503) 657-0331



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From: Riad Alharithi [riad.alharithi@comcast.net]
Sent: Friday, July 24, 2015 10:58 PM
To: Coffie, Morgan; Calvert, Lance; Wyatt, Kirsten; Tan, Jennifer; Axelrod, Russell
Cc: Frank, Thomas; thelatest192@gmail.com; Jackson, Joyce; Perry, Brenda
Subject: Tannler Drive complex building

Good evening;

It came to my attention that a complex of 192 apartment is proposed to be built at Tannler drive.
I hope that this is just a fantasy idea and not a real thing.

It is crazy idea to convert this single family neighborhood into multi-use family.

What is driving me crazy is our city planners and how they are pushing to change our community to multi-use "nodes". They read about it in books and they want to push it down through our throats. I attended the willamette Dr. 20 year vision and they were convinced that we should host our share of the population increase in the Metro area and that we should convert our corridor into "nodes" starting with Tannler Drive and here it comes.

Is it true that this is on a fast track in the TSP?why?

I strongly oppose turning our neighborhood into dense residence. How many advisory committees aware of this zone change? Has it come to the TAB and checked the impact to the traffic at Tannler and Blankenship?

When I bought our house on Falcon Dr. I appreciated the current zoning and I liked how quite the neighborhood is. Who has the right to impact my life and drive me away from this neighborhood? A developer? A planner? A consultant hired by the city? Who is making this decision? And why?

If this is to become true, the first thing I will do is move out of this neighborhood if not the city.
I will do what I can through the council meetings and other venues to oppose this development.

Shroyer, Shauna

From: Jordan, Chris
Sent: Saturday, July 25, 2015 9:40 AM
To: Boyd, John; Pelz, Zach
Subject: Fwd: Tannler Drive complex building
Attachments: image1f16ff.PNG; image4f7bac.PNG

Sent from my iPhone

Chris Jordan, City Manager
Administration, #1422



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Begin forwarded message:

From: "Frank, Thomas" <tfrank@westlinnoregon.gov>
Date: July 25, 2015 at 9:28:15 AM PDT
To: "Mollusky, Kathy" <KMOLLUSKY@westlinnoregon.gov>, "Thornton, Megan" <MThornton@westlinnoregon.gov>
Cc: City Council <ima_citycouncil@westlinnoregon.gov>, "Wyatt, Kirsten" <kwyatt@westlinnoregon.gov>
Subject: Fwd: Tannler Drive complex building

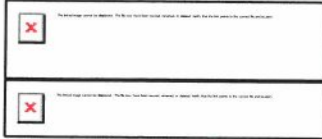
Ex-Parte

Sent from my iPad

Thomas A. Frank
[503.985.6885](tel:503.985.6885)

[w] ThomasAFrank.com
[t] [@mrthomasfrank](https://twitter.com/mrthomasfrank)
[in] [LinkedIn](#)
[f] [Facebook](#)

Thomas Frank
West Linn City Councilor
22500 Salamo Rd
West Linn, OR 97068
tfrank@westlinnoregon.gov
westlinnoregon.gov
Phone(503) 657-0331



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Begin forwarded message:

From: Riad Alharithi <riad.alharithi@comcast.net>
Subject: Tannler Drive complex building
Date: July 24, 2015 at 10:58:15 PM PDT
To: "Coffie, Morgan" <mcoffie@westlinnoregon.gov>, "Calvert, Lance" <LCALVERT@westlinnoregon.gov>, "Wyatt, Kirsten" <kwyatt@westlinnoregon.gov>, <jtan@westlinnoregon.gov>, <raxelrod@westlinnoregon.gov>
Cc: <tfrank@westlinnoregon.gov>, <thelatest192@gmail.com>, <joycejackson3215@comcast.net>, <bperry@westlinnoregon.gov>

Good evening;

It came to my attention that a complex of 192 apartment is proposed to be built at Tannler drive.

I hope that this is just a fantasy idea and not a real thing.

It is crazy idea to convert this single family neighborhood into multi-use family.

What is driving me crazy is our city planners and how they are pushing to change our community to multi-use "nodes". They read about it in books and they want to push it down through our throats. I attended the willamette Dr. 20 year vision and they were convinced that we should host our share of the population increase in the Metro area and that we should convert our corridor into "nodes" starting with Tannler Drive and here it comes.

Is it true that this is on a fast track in the TSP?why?

I strongly oppose turning our neighborhood into dense residence. How many advisory committees aware of this zone change? Has it come to the TAB and checked the impact to the traffic at Tannler and Blankenship?

When I bought our house on Falcon Dr. I appreciated the current zoning and I liked how quite the neighborhood is. Who has the right to impact my life and drive me away from this neighborhood? A developer? A planner? A consultant hired by the city? Who is making this decision? And why?

If this is to become true, the first thing I will do is move out of this neighborhood if not the city.

I will do what I can through the council meetings and other venues to oppose this development.

Shroyer, Shauna

From: Robinson, Michael C. (Perkins Coie) <MRobinson@perkinscoie.com>
Sent: Monday, July 20, 2015 3:17 PM
To: Pelz, Zach
Cc: Rob Morgan; 'Mike Mahoney (mmahoney@conam.com)'; Pete Miller; Gary Alfson; Boyd, John
Subject: ConAm Application; Draft Minutes of July 8, 2015 Willamette Neighborhood association Meeting
Attachments: WNA July 2015 Minutes-draft.docx

Zach, please find attached draft minutes from our July 8, 2015 Willamette Neighborhood Association meeting. For purposes of completeness, the applicant has provided summaries of both neighborhood meetings but the applicant would like you to include these draft minutes in the file for this application.

Thanks. Mike

Michael C. Robinson | Perkins Coie LLP

PARTNER
1120 N.W. Couch Street Tenth Floor
Portland, OR 97209-4128
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C. +1.503.407.2578
F. +1.503.346.2264
E. MRobinson@perkinscoie.com



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NOTICE: This communication may contain privileged or other confidential information. If you have received it in error, please advise the sender by reply email and immediately delete the message and any attachments without copying or disclosing the contents. Thank you.

Draft-Willamette Neighborhood Association Meeting Minutes

7/8/2015

[Facilitator Name] called to order the regular meeting of the Willamette Neighborhood Association at 7:03 pm on July 8, 2015.

I. Attendance:

Officers: Michael Selvaggio, Beth Smolens, Julia Simpson,

Reena Heijderman, Gail Holmes, Jody Carson, Pauline Beatty, Shannen Knight, Kathy Halicki, Mike Halicki, Debbie Meyers, Midge Pierce, Jerry Offer, Lonny Web, Mary O'Malley, Paul Kays, Bill Barger, Tana Barger, Karen Beltin, Bianca Phelan, Morgan, Leslie Foster, Terry Shumaker, Marten Sorelman, , Connie Richardson, , Rian Flad, Susan Flad, Charles Holden, Betty Holden, Yina Gambos, Grace Cargini, Ron Klimeck-Jones, Henry Achcar, Patricia Gayle, Jodi Dodd, Robinson Foster, Sierra Foster, Wyatt Foster, Terry Griffith, Sherry Pryer, Bill Peck, Janet Peck, Mindy Lokner, Roberta Schwartz, Paul and Linda Blankenmeister, Tatiana, Achcar, Susanne Achcar, Robb Morgan, Terry Griffith, Donna and Sidd S.

*there was a significant contingent present from out of the WNA

II. Approval of minutes from last meeting

The amended minutes were approved. Amended minutes will be submitted to the City for posting.

III. Treasurer's Report

Deferred Treasurer is on vacation

IV. WNA Traffic Committee

Midge Pierce could not stay for the meeting and gave a brief report that the traffic committee will meet in September before the next WNA meeting. Midge is stressing that emails be sent in to address the concerns for traffic in our area and focus on ideas for solving problems. Send emails to midgepierce@gmail.com

V. WNA Officer Nominations From The Floor:

President: Mike Selvaggio

Vice President: Julia Simpson

Treasurer: Elizabeth Rocchia

Secretary: Elizabeth Smolens declined nomination due to other commitments

VI. Councilor Jenni Tan

• Accomplishments:

- Police Station is a Gold Lead building

• Goals:

- Transportation System Plan (TSP) to be updated.
- Exploring adding utility of high speed internet to improve speed and public use while decreasing costs to city.
- Committee to be appointed to develop goals/use/disposition for varied city properties.

Mike Selvaggio President ~ Julia Simpson Vice President ~ Elizabeth Rocchia Treasurer ~ Beth Smolens-Secretary

- Council is incorporating lobbyist to development long term plan for 43 in West Linn.
 - NA communication improvement and connection with Council.
 - Developing disaster preparedness plans through “Map Your Neighborhood Program”.
 - Council approved economic development plan with budget of 40K approved for Main Street Manger which will also include the Farmer’s Market program.
 - Arch Bridge Plan; Council continuing outreach and working on finding consensus for plan.
 - Water pipe infrastructure repair and maintenance is ongoing work.
- **Announcements**
 - Water pipe repair completed at the Abernathy Bridge tie in
 - Movies In The Park for summer is resuming
 - Music In The Park for summer is resuming

VII. Con Am Presentation of Pre-application for Tanner/Blankenship property

- **Rob Morgan, Development Manager and Michael Robinson, Attorney at Law**

Described and showed rendering of a proposal for the property; the proposal was for 7 3-story buildings housing 192 apartments above parking garages with 1 500 ft commercial space in each building intending to comply with the CDC chapter 21.050.2 governing OBC commercial/residential use. The complex included a pool and clubhouse, 2 small green spaces, and the upper portion of the property which will be undeveloped and left natural to buffer the complex from the residential area above. Per development manager, height meets requirement of the code, parking meets requirement at roughly 350 spaces.

During the beginning of the presentation, Roberta Schwartz questioned the number of people attending the meeting exceeding the fire code for the conference room. There was no posted occupancy limit located in the conference room and when the concerns were raised, someone said they would contact the fire department to find out what the limit should be. President Michael Selvaggio stated that he would continue the meeting in the meantime.

During discussion many neighborhood members and non-members voice concerns over multiple issues with the plan. To summarize:

The small percentage of commercial space for the size of the project and placement of the commercial space was criticized and questioned. The developer made it clear that the code was not specific enough to dictate how much commercial space was required.

Parking and garage parking was questioned. How would they control the use of the garages if owners decided to use them for storage and not cars? This could create a serious parking and safety issue in the complex.

Traffic impact and traffic flow were questioned; there will be a formal traffic study that will make recommendations for the project then recommendations will surface and mitigation proposed before final application.

Concern was raised that the commercial space planning was poor, commercial spaces did not relate to one another, and were too small for much more than a one room office. There was a suggestion from a resident to cluster the commercial spaces in the center of the complex, along the center drive, so that they would relate to one another and be more conducive to a small main street shops area. This sentiment was echoed several times. Multiple residents also reiterated the sentiment that the commercial spaces need to be larger.

Mike Selvaggio President ~ Julia Simpson Vice President ~ Elizabeth Rocchia Treasurer ~ Beth Smolens-Secretary

A resident pointed out that there is an example of this type of complex in Sherwood.

Other concerns: large delivery trucks getting lost in the complex and unable to turn around or get out. Fire safety was a concern-can the trucks get in the space? Pedestrian safety crossing Blankenship was a concern.

Exiting Tannler onto Blankenship was a concern and there was some speculation about mitigating this by the residents. It was mentioned that a right turn exit from Tannler only was mentioned previously during traffic study. The developer did point out the other entrance/exit to the complex that would line up with the Haagen's Shopping Center.

Concerns raised over developer building a project that does not meet the needs of the community or it would not be suitable or desirable and then sells it.

Concerns that the developer is taking advantage of the code and not interpreting the "spirit" of the code to develop a small sustainable and livable community over a small, vibrant commercial area.

Water supply and drainage were also mentioned by some residents as concerns for this development.

VIII. Announcements:

- **Movies in the park**
- **Sidewalk improvement program**

City is providing savings to residents who have side walk repairs-apply with the city:

cwl_rowpermits@westlinnoregon.gov

IX. Next meeting: August 5, 2015 at 7 pm, at the Pacific West Bank conference room. Agenda items to be considered:

Meeting adjourned at 9:15ish pm

Elizabeth Smolens, Secretary

Shroyer, Shauna

From: Jordan, Chris
Sent: Tuesday, July 14, 2015 4:34 PM
To: Boyd, John; Pelz, Zach
Cc: Axelrod, Russell
Subject: FW: Can Am Development at Tannler and Blankenship

Please include this ex parte' contact in the record for this matter.

Chris Jordan, City Manager
Administration, #1422



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From: Axelrod, Russell
Sent: Tuesday, July 14, 2015 4:29 PM
To: Terry
Cc: Jordan, Chris; City Council
Subject: Re: Can Am Development at Tannler and Blankenship

Ms. Griffith,

Thank you for your email. Any proposed development of this nature should go through the city's planning process which should provide you the opportunity to express your comments and concerns.

I am copying this email to council members and our city manager as an ex-parte contact for the record in case its needed in the future.

My best,
Russ

Sent from my iPad

On Jul 14, 2015, at 10:11 AM, Terry <32zeke@comcast.net> wrote:

Mayor Axelrod:

At the risk of redundancy I've attached a document which I initially sent to former Mayor Kovash and city council men and women in January. At that time Can Am Development was attempting to rezone their property at Tannler and Blankenship and needed your approval. Apparently Can Am Development is now approaching you and the council from another direction. A thinly veiled attempt to build the same apartment complex above an Office Business Center, which is really seven or eight small retail spaces hidden among parking garages and apartments. The bottom line is, regardless of the zoning or the configuration, the traffic impact will be brutal and potentially deadly to the existing businesses in the

area. Please do as you did in January and disallow Can Am's petition. There is a suitable use for the property on Tannler and Blankenship. Apartments are not the correct option.

Regards,

Terry Griffith
West Linn Resident

<west linn traffic.docx>

Russell Axelrod

Mayor

22500 Salamo Rd

West Linn, OR 97068

raxelrod@westlinnoregon.gov

westlinnoregon.gov

Phone(503) 657-0331



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Shroyer, Shauna

From: Shroyer, Shauna
Sent: Tuesday, July 14, 2015 12:56 PM
To: City Council; Planning Commission 2015
Cc: Pelz, Zach
Subject: Possible Land Use Case DR-15-11/LLA-15-01

Good Afternoon,

An application for a Class II Design Review and Lot Line Adjustment at 2444, 2422, and 2410 Tannler Drive has been received by the planning department.

All correspondence/contact with the applicant or neighbors is considered to be ex parte communications. While not prohibited, it is discouraged. Please exercise caution in your communications regarding this matter. The following excerpts from our legal counsel provide guidance for limitations on communication between the public and decision-making bodies:

- *...ORS 227.180(3)(a) requires that members of the decision-making body disclose "the substance of any written or oral ex parte communications concerning the decision or action"*
- *The purpose of the ex parte contact statutes is to ensure that land use decisions are based on information or evidence the decision-makers receive within the public process and not based on information or evidence received outside the public process*

Please contact Zach Pelz if you have any questions.

Thanks,
Shauna

Shauna Shroyer, Administrative Assistant
Planning, #1557



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Robinson, Michael C. (Perkins Coie)

From: Boyd, John <jboyd@westlinnoregon.gov>
Sent: Wednesday, July 15, 2015 3:31 PM
To: Robinson, Michael C. (Perkins Coie)
Subject: FW: Hi Zach

First of two

Sent from my mobile device
John J. Boyd AICP
Planning Manager
(503)656-4211

John Boyd
Planning Manager
22500 Salamo rd
West Linn, OR 97068
jboyd@westlinnoregon.gov
westlinnoregon.gov
Phone (503) 723-2524



West Linn [westlinnoregon.gov]

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-----Original Message-----

From: Roberta Schwarz [roberta.schwarz@comcast.net]
Received: Wednesday, 01 Jul 2015, 9:37AM
To: Boyd, John [jboyd@westlinnoregon.gov]
Subject: FW: Hi Zach

Hello John,

I was thinking that maybe Zach is on vacation this week. Please see email I sent to Zach yesterday. Since these are timely questions will you answer them for me today?

Thank you so much,
Roberta

From: Roberta Schwarz [<mailto:roberta.schwarz@comcast.net>]
Sent: Tuesday, June 30, 2015 3:18 PM
To: 'zpelz@westlinnoregon.gov'
Subject: Hi Zach

Hello Zach,

Is the application for design review complete for the ConAm/ Parker site? May I have a copy or would you direct me to the link for it? What is the time table for it? When does it go to the PC? When does it go to the CC?
The public notice posting for it is unreadable because it is curling due to the hot weather. Would you let the applicant know so it can be posted properly and will be readable by the citizens?

Please respond as soon as possible as these are timely questions.

Thank you very much,
Roberta

Robinson, Michael C. (Perkins Coie)

From: Boyd, John <jboyd@westlinnoregon.gov>
Sent: Wednesday, July 15, 2015 3:32 PM
To: Robinson, Michael C. (Perkins Coie)
Subject: FW: Hi Zach

My response
Second of two

Sent from my mobile device
John J. Boyd AICP
Planning Manager
(503)656-4211

John Boyd
Planning Manager
22500 Salamo rd
West Linn, OR 97068
jboyd@westlinnoregon.gov
westlinnoregon.gov | westlinnoregon.gov
Phone (503) 723-2524

 **West Linn** [westlinnoregon.gov]
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-----Original Message-----

From: Boyd, John [jboyd@westlinnoregon.gov]
Received: Wednesday, 01 Jul 2015, 10:29AM
To: 'Roberta Schwarz' [roberta.schwarz@comcast.net]
CC: Pelz, Zach [zpelz@westlinnoregon.gov]
Subject: RE: Hi Zach

Good Morning Roberta;

When an application is received the website will be updated and continuously updated throughout the process.

Regarding your other statements, there are no comments or follow up action needed.

Thanks

John

John J. Boyd AICP
Planning Manager

Shroyer, Shauna

From: Rapp, Reagan S. (Perkins Coie) <RRapp@perkinscoie.com> on behalf of Robinson, Michael C. (Perkins Coie) <MRobinson@perkinscoie.com>
Sent: Monday, July 20, 2015 1:08 PM
To: Pelz, Zach
Cc: Boyd, John; mmahoney@conam.com; rmorgan@conam.com; pete.miller@otak.com; Robinson, Michael C. (Perkins Coie)
Subject: Emails from Roberta Schwarz
Attachments: 20072015[Filename].pdf

Follow Up Flag: Follow up
Flag Status: Completed

Dear Zach,

I have attached Ms. Schwarz's two (2) emails dated July 1, 2015. Ms. Schwarz asked in the first email if the ConAm application was complete, if she could have a copy of the application, the processing timetable for the application, the Planning Commission hearing date and whether the application will be heard by the City Council. She also stated "The public notice posting board is unreadable because it is curling due to the hot weather. Would you let the applicant know so it can be posted properly and will be readable by the citizens?"

I am responding on behalf of the applicant.

1. The City deemed the application incomplete on July 16. The application will be made complete on July 20, 2015.
2. I understand that a copy of the application is available to the public on the City's website.
3. To the best of my knowledge, the City has not set the Planning Commission hearing date.
4. The application will be heard by the City Council only on appeal.
5. The "public notice" posting she refers to is the notice posting for the two (2) neighborhood meetings. The neighborhood meetings were held on July 7 and July 8. The notice does not advertise a public hearing because a public hearing has not yet been set.

Please place this email in the record for this application. If there are any additional questions the applicant can answer, please let us know.

Michael C. Robinson | Perkins Coie LLP

PARTNER
1120 N.W. Couch Street Tenth Floor
Portland, OR 97209-4128
D. +1.503.727.2264
C. +1.503.407.2578
F. +1.503.346.2264
E. MRobinson@perkinscoie.com



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PC-9

**REQUIRED IMPROVEMENTS BASED ON THE 2013 WEST
LINN TRAILS MASTER PLAN**

Pelz, Zach

From: Worcester, Ken
Sent: Thursday, August 13, 2015 12:36 PM
To: Pelz, Zach
Subject: RE: ConAm

Zach,

This particular trail as you know is a Primary Off Street Route along the unimproved Green Street Right of Way. It will serve as a major connector mid-hill for the Barrington Heights, and Savanna Oaks Neighborhoods to access the other existing and proposed trails and parks etc. As such we will be planning this to be a multi-use path with a minimum 10' width of paved surface.

Ken

Ken Worcester, Parks & Recreation Director
Parks & Recreation, #1555



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From: Pelz, Zach
Sent: Thursday, August 13, 2015 9:01 AM
To: Worcester, Ken
Cc: Boyd, John
Subject: ConAm

Ken,

Can you send me a quick email to describe what the planned improvements for the Primary Off-street route that runs along the northern boundary of the ConAm site? They will be required to contribute a proportionate share toward the cost of these improvements.

Thank you,

Zach

Zach Pelz, Associate Planner
Planning and Building, #1542



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PC-10

TREE PRESERVATION COMMENTS FROM CITY ARBORIST

Pelz, Zach

From: Perkins, Michael
Sent: Thursday, August 13, 2015 1:25 PM
To: Pelz, Zach
Subject: Con Am

Just basically and briefly, I think that the Con am project on Tannler should save all of the significant oaks that are part of the grove at the north end of the property. Unfortunately the trees on the edge of the grove that they are proposing for removal are some of the nicer and larger trees in the grove. In general it is not desirable to remove trees from the edge of tree clusters and groves as it can open the remainder of the trees up to windthrow since they have become accustomed to having the other trees there to buffer the wind. I would encourage the planning dept/planning commission to require the maximum square footage for tree protection to protect as many Oregon white oaks in this grove.

Michael Perkins, City Arborist/Park Development Coordinator
Parks and Recreation, #1554



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