CHAPTER 5: APPENDICES

5.2 Appendix C: Initial Data Summary

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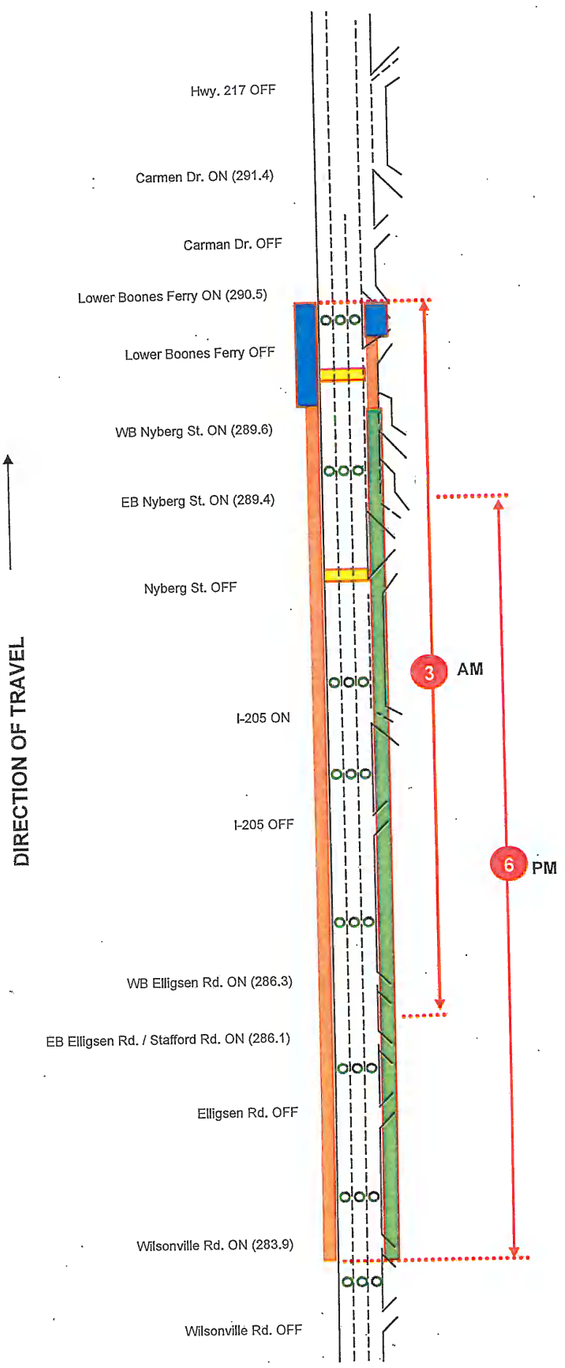
I-5 Northbound

Wilsonville Rd On Ramp to Lower Bones Ferry On Ramp



Distance Between Interchanges:

SW Wilsonville Rd. to SW Elligsen Rd. = 2.29 miles
SW Elligsen Rd. to I-205 = 2.33 miles
I-205 to SW Nyberg Rd = 1.00 miles
SW Nyberg Rd to Lower Boones Fery Rd. = 0.98 miles

Distance Between Gore Points:

1) Wilsonville Rd On Ramp to Elligsen Rd Off Ramp = 1.8 miles
2) Elligsen Rd Off Ramp to Elligsen Rd EB On Ramp = 0.52 miles
3) Elligsen Rd EB On Ramp to Elligsen Rd WB On Ramp = 0.07 miles
4) Elligsen Rd WB On Ramp to Off Ramp to I-205 EB = 1.74 miles
5) Off Ramp to I-205 EB to On Ramp from I-205 WB = 0.27 miles
6) On Ramp from I-205 WB to Nyberg St Off Ramp= 0.80 miles
7) Nyberg St Off Ramp to Nyberg St EB On Ramp = 0.23 mile
8) Nyberg St EB On Ramp to Nyberg St WB On Ramp = 0.23 miles
9) Nyberg St WB On Ramp to Lower Boones Ferry Rd Off Ramp = 0.54 miles
10) Lower Boones Ferry Rd Off Ramp to Lower Boones Ferry Rd On Ramp = 0.47 miles

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Width at Structures:

MP 284.88 (Boeckman) HC = 40', VC = 18'
MP 286.18 (Elligsen) HC = 78', VC = 19' 2"
MP 287.42 (Norwood) HC = 86', VC = 17' 7"
MP 288.47 (I-205) HC = 54', VC = 17' 3"
MP 288.98 (Sagert) HC = 58', VC = 17' 2"
MP 289.50 (Nyberg) HC = 58', VC = 17' 9"

Vertical Grades:

MP 289.00 - Crest: -4.88%
MP 289.94 - Sag: 3.26%

3-5% | Greater than 5%

Horizontal Curves:

Greater than 3^ 15'

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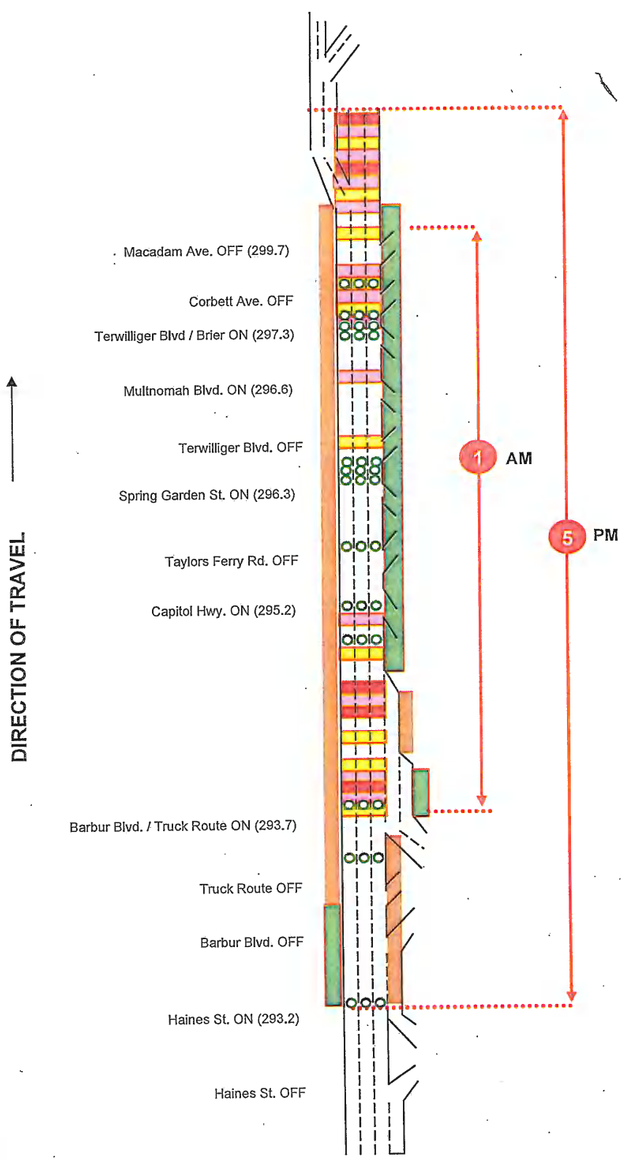
Figure 1
I-5/I-205 Corridor Design Review
INITIAL DATA SUMMARY

I-5 Northbound

Haines St On Ramp to Naito / I-405 Off Ramp



Distance Between Interchanges:

SW Haines St to SW Barbur Blvd = 0.73 miles
SW Barbur Blvd to SW Capitol Hwy = 1.21 miles
SW Capitol Hwy to SW Spring Garden St = 1.35 miles
SW Spring Garden St to SW Terwilliger Blvd = 0.78 miles
SW Terwilliger Blvd to Sw Macadam Ave = 2.58 miles

Distance Between Gore Points:

1) Haines St On Ramp to Barbur Blvd Off Ramp = 0.20 miles
2) Barbur Blvd Off Ramp to Truck Route Off Ramp = 0.26 miles
3) Truck Route Off Ramp to Barbur Blvd/Truck Route On Ramp = 0.43 miles
4) Barbur Blvd /Truck Route to Capitol Hwy On Ramp = 1.16 miles
5) Capitol Hwy On Ramp to Taylors Ferry Rd Off Ramp = 0.32 miles
6) Taylors Ferry Rd Off Ramp to Spring Garden St On Ramp = 0.79 miles
7) Spring Garden St On Ramp to Terwilliger Blvd Off Ramp = 0.28 miles
8) Terwilliger Blvd Off Ramp to Multnomah Blvd On Ramp = 0.36 miles
9) Multnomah Blvd On Ramp to Terwilliger Blvd/Brier On Ramp = 0.74 miles
10) Terwilliger Blvd/Brier On Ramp to Corbett Ave Off Ramp = 1.05 miles
11) Corbett Ave Off Ramp to Macadam Ave Off Ramp = 0.42 miles
12) Macadam Ave Off Ramp to Naito /I-405 Off Ramp = 0.73 miles

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Width at Structures:

MP 293.90 (Haines) HC = 71', VC = 28' 8"
MP 293.77 (Barbur) HC = 54', VC = 17' 3"
MP 293.82 (Barbur) HC = 54', VC = 18' 3"
MP 295.04 (Capitol) HC = 49', VC = 15' 3"
MP295.26 (Ped Bridge) HC = 49', VC = 17' 9"
MP 296.04 (26th) HC = 42' 4"
MP 296.34 (Spring Garden) HC = 56', VC = 14' 10"
MP 296.46 (19th) HC = 49' 6", VC = 19' 1"
MP 296.55 (Multnomah) HC = 50' 06", VC = 16' 05"
MP 297.05 (Bertha) HC = 56', VC = 19' 1"
MP 297.17 (Terwilliger) HC = 49', VC = 17' 5"
MP 297.55 (Brier) HC = 50', VC = 17'
MP 298.83 (Corbett) HC = 50' 6", VC = 17' 8"

Horizontal Curves:

MP 293.75 - 4.00
MP 293.78 - 6.00
MP 294.56 - 3.50
MP 295.08 - 4.00
MP 296.89 - 7.00
MP 297.36 - 7.00
MP 298.58 - 5.00
MP 298.80 - 6.00
MP 299.92 - 8.00
MP 300.45 - 8.50
MP 300.57 - 6.00
MP 300.68 - 4.00

Greater than 3^ 15'

Vertical Grades:

MP 293.74 - Crest: -3.63%
MP 293.88 - Crest: -5.93%
MP 293.97 - Sag: -4.27%
MP 294.05 - Crest: -4.78%
MP 294.14 - Crest: - 5.97%
MP 294.20 - Sag: -5.23%
MP 294.69 - Crest: -4.39%
MP 296.44 - Crest: -4.00%
MP 297.77 - Crest: -3.54%
MP 298.91 - Crest: -3.80%
MP 299.86 - Sag 4.42%
MP 300.02 - Sag -5.00%
MP 300.10 - Sag: 5.72%
MP 300.54 - Crest: -5.00%
MP 300.66 - Crest: -5.54%

3-5% | Greater than 5%

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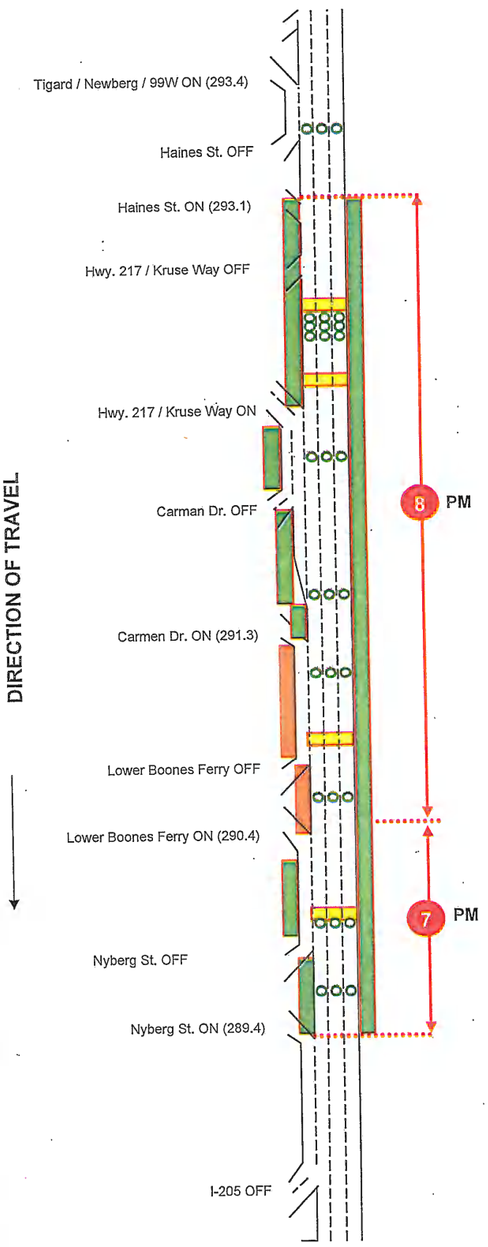
Figure 2
I-5/I-205 Corridor Design Review
INITIAL DATA SUMMARY

I-5 Southbound

Nyberg St On Ramp to Haines St On Ramp



Distance Between Interchanges:

SW Nyberg St to Lower Boones Ferry Rd = 0.98 miles
Lower Boones Ferry Rd to Carman Dr = 0.82 miles
Carman Dr to Kruse Way = 0.92
Kruse Way to SW Haines St = 1.01 miles

Distance Between Gore Points:

1) Nyberg St On Ramp to Lower Boones Fery Rd On Ramp = 0.58 miles
2) Lower Boones Fery Rd On Ramp to Lower Boones Ferry Rd Off Ramp = 0.45 miles
3) Lower Boones Ferry Rd Off Ramp to Carman Dr On Ramp = 0.32 miles
4) Carman Dr On Ramp to Carman Dr Off Ramp = 0.48 miles
5) Carman Dr Off Ramp to Hwy 217/Kruse Way On Ramp = 0.45 miles
6) Hwy 217/Kruse Way On Ramp to Hwy 217/Kruse Way Off Ramp = 0.46 miles
7) Hwy 217/Kruse Way Off Ramp to Haines St On Ramp = 0.45 miles

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Width at Structures:

MP 289.50 (Nyberg) HC = 62', VC = 17' 3"
MP 289.91 (RR) HC = 60', VC = 18' 6"
MP 290.48 (Lower Boones) HC = 88'
MP 290.97 (RR) HC = 69'
MP 291.30 (Carman) HC = 50', VC = 17' 5"
MP 291.81 (Bonita) HC = 60', VC = 16' 10"
MP 292.16 (Kruseway) VC = 17' 2"
MP 292.19 (Ped Bridge) VC = 17' 2"
MP 292.20 (Kruseway) HC = 60', VC = 16' 10"
MP 293.30 (Haines) HC = 67', VC = 16' 1"

Horizontal Curves:

Greater than 3^ 15'

Vertical Grades:

MP 289.94 - Sag: 3.26%
MP 290.78 - Sag: 3.41%
MP 292.26 - Sag 4.75%
MP 292.42 - Crest 3.32%

3-5% | Greater than 5%

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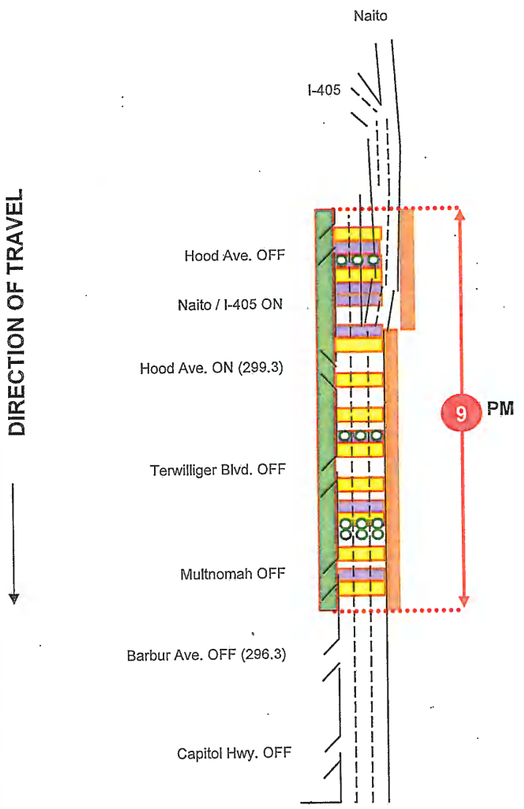
Figure 3
I-5/I-205 Corridor Design Review
INITIAL DATA SUMMARY

I-5 Southbound

Barbur Ave Off Ramp to Naito/ I-405 Off Ramp



Distance Between Interchanges:

SW Terwilliger Blvd to SW Corbett Ave = 1.65 miles
SW Corbett Ave to SW Macadam Ave = 0.45 miles

Distance Between Gore Points:

1) Barbur Ave Off Ramp to Multnomah Off Ramp = 0.38 miles
2) Multnomah Off Ramp to Terwiliger Blvd Off Ramp = 0.63 miles
3) Terwiliger Blvd Off Ramp to Hood Ave On Ramp = 1.94 miles
4) Hood Ave On Ramp to I-405 On Ramp = 0.31 miles

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Width at Structures:

MP 297.05 (Bertha) HC = 26', VC = 19' 1"
MP 297.17 (Terwilliger) HC = 49', VC = 16' 1"
MP 297.55 (Brier) HC = 50', VC = 24' 5"
MP 298.83 (Corbett) HC = 49' 1", VC = 27' 4"

Horizontal Curves:

MP 296.89 - 7.00
MP 297.36 - 7.00
MP 298.58 - 5.00
MP 299.99 - 5.00
MP 300.21 - 4.00
MP 300.46 - 9.13
MP 300.68 - 6.00
MP 300.74 - 4.00

Greater than 3^ 15'

Vertical Grades:

MP 296.44 - Crest: -4.00%;
MP 296.80 - Crest: -3.36%;
MP 297.31 - Crest -3.38%;
MP 297.77 - Crest -3.54%;
MP 298.55 - Crest: -3.36%;
MP 298.91 - Crest: -3.80%;
MP 299.21 - Sag -3.11%;
MP 299.91 - Sag -5.00%;
MP 300.56 - Crest -5.00%;
MP 300.83 - Crest -4.72%;

3-5% | Greater than 5%

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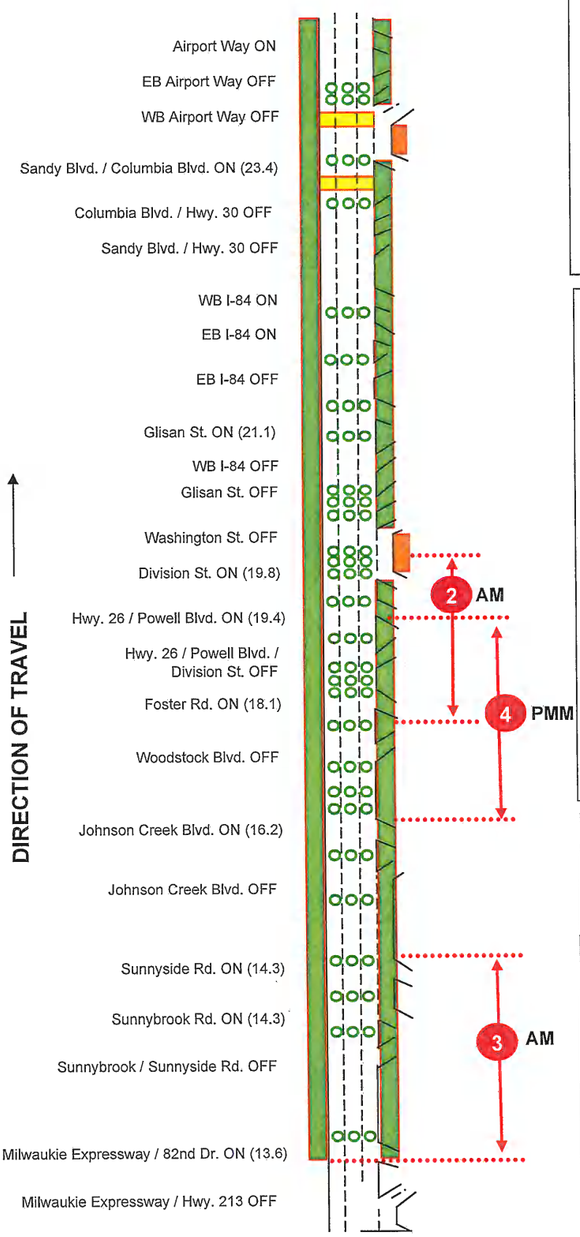
Figure 4
I-5/I-205 Corridor Design Review
INITIAL DATA SUMMARY

I-205 Northbound

Milwauke Expressway / 82nd Dr On Ramp to Airport Way On Ramp



Distance Between Interchanges:

Milwauke Expy to SE Sunnybrook Blvd = 0.72 miles
SE Sunnybrook Blvd to SE Sunnyside Rd = 0.26 miles
SE Sunnyside Rd to SE Johnson Creek Blvd = 1.66 miles
SE Johnson Creek Blvd to SE Foster Rd = 1.62 miles
SE Foster Rd to SE Powell Blvd = 1.27 miles
SE Powell Blvd to SE Division St = 0.49 miles
SE Division St to SE Washington = 0.99 miles
SE Washington St to NE Glisan St = 0.55 miles
NE Glisasn St to I-84 = 0.48 miles
I-84 to HWY 30 = 1.02 miles
HWY 30 to NE Sandy Blvd = 1.07 miles
NE Sandy Blvd to Airport Way = 0.97 miles

Distance Between Gore Points:

1) Milwauke Expy/82nd Dr Off Ramp to Sunnybrook Rd/Sunnyside Rd Off Ramp = 0.67 miles
2) Sunnybrook Rd/Sunnyside Rd Off Ramp to Sunnybrook Rd On Ramp = 0.30 miles
3) Sunnybrook Rd On Ramp to Sunnyside Rd On Ramp = 0.22 miles
4) Sunnyside Rd On Ramp to Johnson Crk Blvd Off Ramp = 1.10 miles
5) Johnson Crk Blvd Off Ramp to Johnson Creek Blvd On ramp = 0.31 miles
6) Johnson Crk Blvd On Ramp to Woodstock Blvd Off Ramp = 1.29 miles
7) Woodstock Blvd Off Ramp to Foster Rd On Ramp = 0.61 miles
8) Foster Rd On Ramp to Powell Blvd Off Ramp = 0.79 miles
9) Powell Blvd Off Ramp to Powell Blvd On Ramp = 0.58 miles
10) Powell Blvd On Ramp to Division St On Ramp= 0.40 miles
11) Division St On Ramp to Washington/Stark Off Ramp = 0.46 miles
12) Washington/Stark Off Ramp to Glisan St Off Ramp = 0.30 miles
13) Glisan St Off Ramp to I-84 WB Off Ramp = 0.36 miles
14) I-84 WB Off Ramp to Glisan St On Ramp = 0.50 miles
15) Glisan St On Ramp to I-84 EB Off Ramp = 0.73 miles
16) I-84 EB Off Ramp to I-84 EB On Ramp = 0.41 miles
17) I-84 EB On Ramp to I-84 WB On Ramp = 0.23 miles
18) I-84 WB On Ramp to Sandy Blvd Off Ramp = 0.35 miles
19) Sandy Blvd Off Ramp to Columbia Blvd Off Ramp = 0.41 miles
20) Columbia Blvd Off Ramp to Columbia Blvd On Ramp = 0.36 miles
21) Columbia Blvd On Ramp to Airport Way WB Off Ramp = 0.28 miles
22) Airport Way WB Off Ramp to Airport Way EB Off Ramp = 0.22 miles
23) Airport Way EB Off Ramp to Airport Way On Ramp = 0.49 miles

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Width at Structures:

MP 13.76 (RR) HC = 60';
MP 14.32 (Sunybrook) HC = 56', VC = 17' 1"
MP 14.58 (Sunnyside) HC = 56', VC = 17' 1"
MP 14.94 (Monterey) HC = 55' 10", VC = 18'
MP 15.87 (Otty) HC = 56', VC = 22' 7"
MP 16.24 (Johnson) HC = 56', VC = 18' 3"
MP 16.80 (92nd) HC = 58'
MP 17.12 (Flavel) HC = 58'
MP 17.43 (RR) HC = 58'
MP 17.80 (Woodstock/Foster) HC = 60'
MP 18.11 (Harold) HC = 58'
MP 18.24 (Ped Bridge) HC = 58', VC = 17' 10"
MP 18.62 (Holgate) HC = 58', VC = 17' 1"
MP 19.12 (Hwy 26) HC = 72'
MP 19.61 (Division) HC = 72'
MP 20.06 (Market) HC = 64', VC = 19' 3"
MP 20.28 (Ped Bridge) HC = 64', VC = 22'
MP 20.57 (Washington) HC = 68', VC = 18' 7"
MP 20.62 (Stark) HC = 68', VC = 19'
MP 20.87 (Burnside) HC = 68', VC = 19'
MP 21.07 (Glisan) HC = 68', VC = 17' 9"
MP 21.18 (Ramp) HC = 68', VC = 17' 9"
MP 21.48 (Max Line) HC = 65', VC = 18'
MP 21.58 (Hwy 64) HC = 68'
MP 21.86 (RR) HC = 60'
MP 21.68 (Halsey) HC = 68', VC = 19' 4"
MP 23.27 (Prescott) HC = 70', VC = 25' 2"
MP 23.40 (Sandy) HC = 72', VC = 18' 7"
MP 23.70 (Columbia) HC = 64', VC = 25'
MP 23.80 (RR) HC = 64', VC = 17'

Vertical Grades:

MP 23.28 - Crest: -3.00%
MP 23.62 - Crest: -3.00%

3-5% | Greater than 5%

Horizontal Curves:

Greater than 3^ 15'

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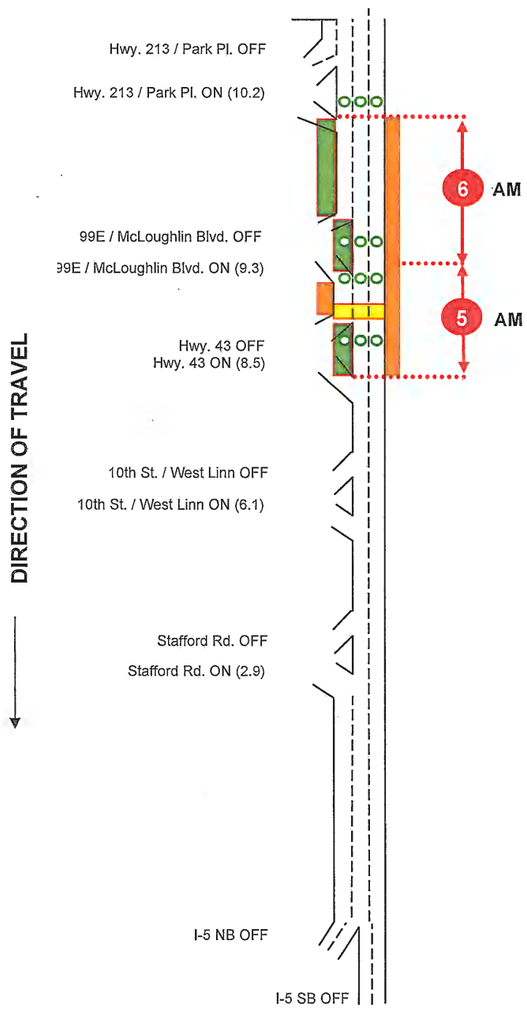
Figure 5
I-5/I-205 Corridor Design Review
INITIAL DATA SUMMARY

I-205 Southbound

Highway 43 On Ramp to Highway 213 / Park Place On Ramp



Distance Between Interchanges:

Hwy 43 to McLoughlin Blvd = 0.56 miles
McLoughlin Blvd to Hwy 213 = 0.88 miles

Distance Between Gore Points:

1) Hwy 43 On Ramp to Hwy 43 Off Ramp = 0.51 miles
2) Hwy 43 Off Ramp to 99E/McGloughlin Blvd On Ramp = 0.25 miles
3) 99E/McGloughlin Blvd On Ramp to 99E/McGloughlin Blvd Off Ramp = 0.30 miles
4) 99E/McGloughlin Blvd Off Ramp to Hwy 213/Park Pl On Ramp = 0.42 miles

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Width at Structures:

MP 8.82 (Willamette River) HC = 92"
MP (McLoughlin) HC = 92'
MP 9.51 (Main St) HC = 71'
MP 10.24 (Parkplace) HC = 64', VC = 17' 4"

Vertical Grades:

MP 8.86 - Crest: -3.00

3-5% | Greater than 5%

Horizontal Curves:

Greater than 3^ 15'

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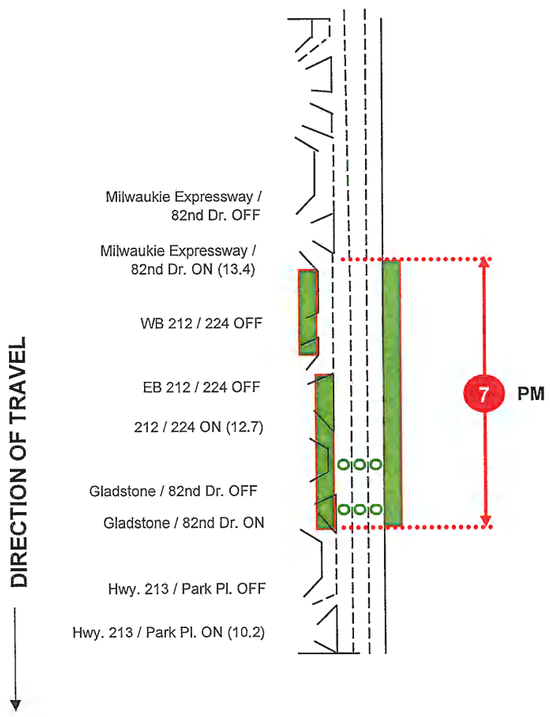
Figure 6
I-5/I-205 Corridor Design Review
INITIAL DATA SUMMARY

I-205 Southbound

Gladstone / 82nd Dr On Ramp to Milwauke Expressway / 82dn Dr On Ramp



Distance Between Interchanges:

Gladstone / 82nd Dr to Carver Rd = 1.63 miles
Carver Rd to Milwauke Expressway = 0.82 miles

Distance Between Gore Points:

1) Gladstone/82nd Dr On Ramp to Gladstone/82nd Dr Off Ramp = 0.44 miles
2) Gladstone/82nd Dr Off Ramp to 212//224 On Ramp = 1.06 miles
3) 212//224 On Ramp to EB 212/224 Off Ramp = 0.34 miles
4) EB 212/224 Off Ramp to WB 212/214 Off Ramp = 0.24 miles
5) WB 212/214 Off Ramp to Milwaukie Expressway/82nd Dr. On Ramp = 0.31 miles

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Horizontal Curves:

Greater than 3^ 15'

Width at Structures: ooo

MP 11.05 (82nd Dr) HC = 120', VC = 18' 4"
MP 11.98 (Strawberry) HC = 92', VC = 17' 3"

Vertical Grades:

3-5% | Greater than 5%

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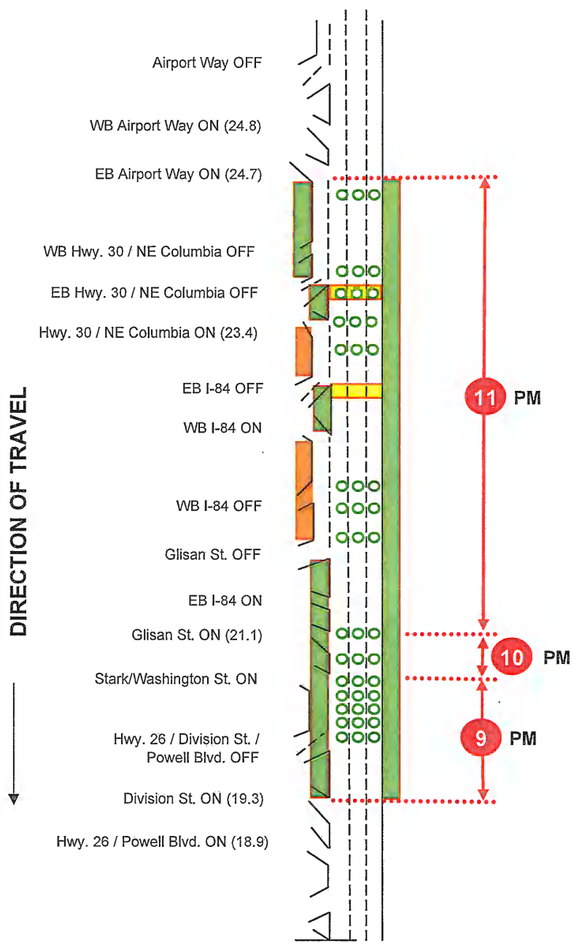
Figure 7
I-5/I-205 Corridor Design Review
INITIAL DATA SUMMARY

I-205 Southbound

Gladstone / 82nd Dr On Ramp to Milwauke Expressway / 82nd Dr On Ramp



Distance Between Interchanges:

SE Division St to Stark / Washington St = 0.98 miles
Stark / Washington St to NE Glisan St = 0.53 miles
NE Glisan St to I-84 WB = 0.30 miles
I-84 WB to I-84 EB = 1.16 miles
I 84 EB to NE Columbia Blvd = 1.09 miles
NE Columbia Blvd to NE Airport Way = 0.97 miles

Distance Between Gore Points:

1) Division St On Ramp to Division St Off Ramp = 0.78 miles
2) Division St Off Ramp to Stark/Washington On Ramp = 0.29 miles
3) Stark/Washington On Ramp to Glisan St On Ramp = 0.40 miles
4) Glisan St On Ramp to I-84 EB On Ramp = 0.49 miles
5) I-84 EB On Ramp to Glisan St Off Ramp = 0.35 miles
6) Glisan St Off Ramp to I-84 WB Off Ramp = 0.16 miles
7) I-84 WB Off Ramp to I-84 WB On Ramp = 0.42 miles
8) I-84 WB On Ramp to I-84 EB Off Ramp = 0.80 miles
9) I-84 EB Off Ramp to Columbia Blvd On Ramp = 0.54 miles
10) Columbia Blvd On Ramp to Columbia Blvd EB Off Ramp = 0.24 miles
11) Columbia Blvd EB Off Ramp to Columbia Blvd WB Off Ramp = 0.10 miles
12) Columbia Blvd WB Off Ramp to Airport Way EB On Ramp = 0.50 miles

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Vertical Grades:

MP 23.28 - Crest: -3.00
MP 23.62 - Crest: -3.00

3-5% | Greater than 5%

Horizontal Curves:

Greater than 3^ 15'

Width at Structures: ooo

MP 19.61 (Division) HC = 144'
MP 20.06 (Market) HC = 64', VC = 20'
MP 20.28 (Ped Bridge) HC = 64', VC = 18' 9";
MP 20.57 (Washington) HC = 62', VC = 18' 2"
MP 20.62 (Stark) HC = 62', VC = 19'
MP 20.87 (Burnside) HC = 58', VC = 17' 11"
MP 21.07 (Glisan) HC = 68', VC = 18'
MP 21.48 (MAX LRT) HC = 55', VC = 17' 7"
MP 21.57 (I-84) HC = 79'
MP 21.68 (Halsey) HC = 68', VC = 16' 7"
MP 23.27 (Prescott) HC = 90', VC = 24' 4"
MP 23.48 (Sandy) HC = 78', VC = 17' 10"
MP 23.70 (Columbia) HC = 78', VC = 17' 10"
MP 23.79 (UPRR) HC = 96', VC = 17'
MP 24.35 (Alderwood) HC = 65'

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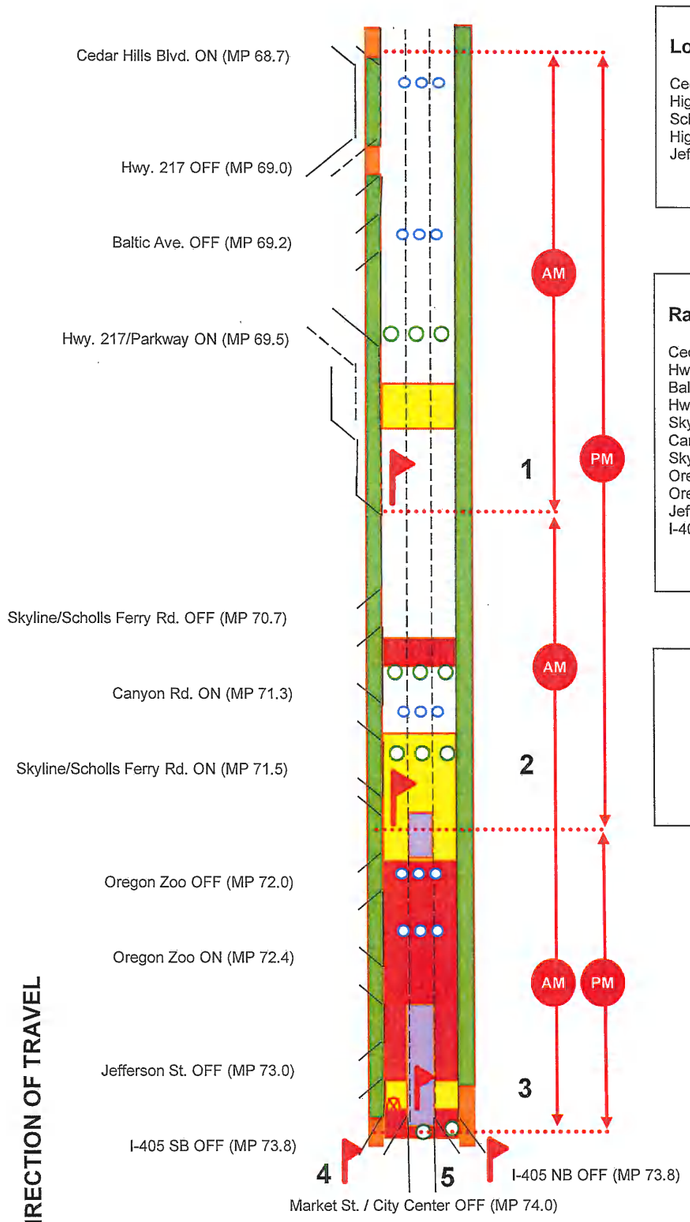
Figure 8
I-5/I-205 Corridor Design Review
INITIAL DATA SUMMARY

US 26 Eastbound

Study Area Boundary



Location of Interchanges	Distance Between
Cedar Hills Blvd. (MP 68.83)	
Highway 217 (MP 69.20)	0.37 miles
Scholls Ferry Rd. (MP 71.30)	2.10 miles
Highland Rd. (MP 72.18)	0.88 miles
Jefferson St. (MP 73.42)	1.24 miles

Ramp Gore Points	Distance Between
Cedar Hills Blvd. on ramp (MP 68.73)	
Hwy. 217 off Ramp (MP 69.01)	0.28 miles
Baltic Ave. off ramp (MP 69.17)	0.16 miles
Hwy. 217 on ramp (69.53)	0.36 miles
Skyline/Scholls Ferry Rd. off ramp (MP 70.68)	1.15 miles
Canyon Rd. on ramp (MP 71.30)	0.62 miles
Skyline/Scholls Ferry Rd. on ramp (MP 71.47)	0.17 miles
Oregon Zoo off ramp (MP 72.03)	0.56 miles
Oregon Zoo on ramp (MP 72.36)	0.33 miles
Jefferson St. off ramp (MP 73.33)	0.97 miles
I-405 SB off ramp (MP 73.81)	0.48 miles

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Vertical Grades:

MP 69.71 - Sag: 4.27%; MP 70.90 - Sag: 5.11%
MP 71.31 - Crest: -4.95%; MP 71.46 - Crest: -4.92%
MP 71.61 - Sag: -3.87%; MP 71.89 - Crest -3.43%
MP 71.96 - Crest: -4.96%; MP 72.02 - Sag: -3.58%
MP 72.06 - Crest: -3.91%; MP 72.10 - Crest: -3.51%
MP 72.44 - Crest: -6.21%; MP 72.67- Sag: -5.07%
MP 72.88 - Crest: -6.20%; MP 73.06 - Sag: -5.97%
MP 73.21 - Sag: -5.03%; MP 73.39 - Sag: -4.80%
MP 73.48 - Sag: -4.03%; MP 73.56 - Crest: -4.92%
MP 73.86 - Sag: 5.52%; MP 73.89 - Crest: 5.10%

3-5% | Greater than 5%

Clearance at Structures:

MP 68.96 (Pedestrian Bridge) HC = 66' 8", VC = 18'1"
MP 70.64 (Camelot Ct) HC = 37', VC = 18' 8"
MP 71.30 (Skyline Blvd) HC = 54' 2", VC = 17' 1"
MP 72.18 (Highland Rd) HC = 49', VC = 15' 3"

Horizontal Curves:

MP 71.61 - 4.5; MP 71.82 - 4.00
MP 72.53 - 7.0; MP 72.80 - 4.00
MP 73.09 - 4.50; MP 73.31 - 8.00
MP 73.81 - 12.00

Greater than 3^ 15'

Study Area Boundary

LEGEND

- Location of Interchanges
- PORTAL Detector Location (Year 2007 data)
- PORTAL Detector Location (Detector data missing or questionable)
- (###.#) M.P. of PORTAL Detector (near the approximate on-ramp gore point)
- Activation Range: This is the segment which contains the start of a new/confounding bottleneck (this does not encompass all congestion; see Bottleneck Description)
- Bottleneck Influence Area - Cross reference # with Key Statistics: Initial Data Results
- Mainline bottleneck concern

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Figure 9
Bottleneck Study
US26 EB AM & PM Bottlenecks

\\PDXFS1\project\O\ODOT00000674\0600INFO\TT\Background Data and Figures\Design Review Figures\Design-Review_US26_6-13-11.xlsx
Revision: 3
Purpose: Design Review

6/20/2011

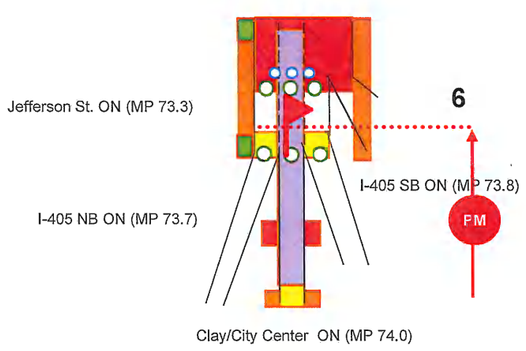
US 26 Westbound

Study Area Boundary

Location of Interchanges	Distance Between
Jefferson St. (MP 73.42)	0.31 miles
Stadium Fwy Intchg Connections (MP 73.73)	

Ramp Gore Points	Distance Between
Jefferson St. on ramp (MP 73.33)	0.67 miles
Clay St. on ramp (MP 74.0)	

DIRECTION OF TRAVEL



Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Clearance at Structures:

MP 73.56 (Vista Ridge Tunnel) HC = 41', VC = 15' 8"

Vertical Grades:

MP 73.06 - Sag: -5.97%
MP 73.21 - Sag -5.03%
MP 73.49 - Sag -4.30%
MP 73.60 - Crest: -5.19%
MP 73.98 - Crest: -3.72%

3-5% | Greater than 5%

Horizontal Curves:

MP 73.09 - 4.50
MP 73.33 - 8.50
MP 73.83 - 12.00
MP 73.84 - 28.00

Greater than 3^ 15'

Study Area Boundary

LEGEND

- Location of Interchange
- PORTAL Detector Location (Year 2007 data)
- PORTAL Detector Location (Detector data missing or questionable)
- (###.#) M.P. of PORTAL Detector (near the approximate on-ramp gore point)
- Activation Range: This is the segment which contains the start of a new/confounding bottleneck (this does not encompass all congestion; see Bottleneck Description)
- Bottleneck Influence Area - Cross reference # with Key Statistics: Initial Data Results
- Mainline bottleneck concern

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Figure 10
Bottleneck Study
US26 WB AM & PM Bottlenecks

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Revision: 3
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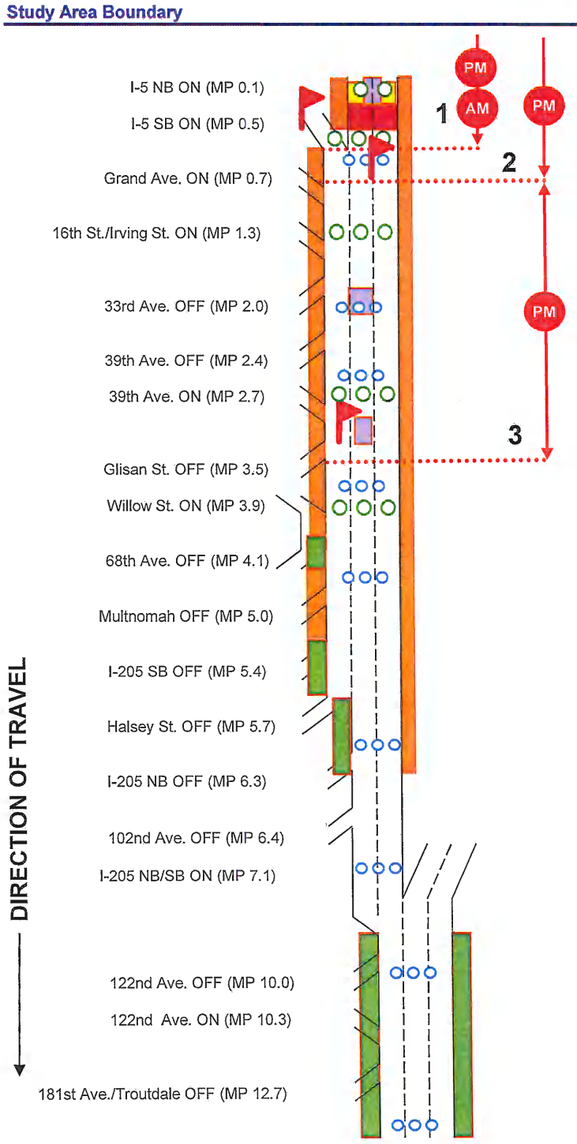
6/20/2011

I-84 Eastbound

Study Area Boundary



Location of Interchanges	Distance Beween
Grand Avenue (MP 0.52)	
	1.64 miles
33rd Avenue (MP 2.16)	
	0.39 miles
39th Avenue (MP 2.55)	
	1.14 miles
60th Avenue (MP 3.69)	
	0.57 miles
Halsey St. (MP 4.26)	
	1.60 miles
Halsey St. (MP 5.86)	
	0.69 miles
102nd Avenue (MP 6.55)	
	3.53 miles
122nd Avenue (MP 10.08)	
	2.96 miles
181th Avenue (MP 13.04)	

Ramp Gore Points	Distance Beween
Grand Ave. on ramp (MP 0.66)	
	0.67 miles
16th Ave. (MP 1.33)	
	0.67 miles
33rd Ave. off ramp (MP 2.00)	
	0.43 miles
39th Ave. off ramp (MP 2.43)	
	0.29 miles
39th Ave. on ramp (MP 2.71)	
	0.77 miles
Glisan St. off ramp (MP 3.48)	
	0.41 miles
Willow St. on ramp (MP 3.89)	
	0.22 miles
68th Ave. off ramp (MP 4.11)	
	0.95 miles
Multnomah off ramp (MP 5.06)	
	0.37 miles
I-205 SB off ramp (MP 5.43)	
	0.29 miles
Halsey St. off ramp (MP 5.72)	
	0.58 miles
I-205 NB off ramp (MP 6.30)	
	0.26 miles
102nd Ave. off ramp (MP 6.56)	
	3.46 miles
122nd Ave. off ramp (MP 10.02)	
	0.30 miles
122nd Ave. on ramp (MP 10.32)	
	2.41 miles
181th Ave. off ramp (MP 12.73)	
181st Ave. on ramp (MP 13.26)	

Clearance at Structures:

MP 0.46 (MLK Blvd.) HC = 30', VC= 17' 01"
MP 0.52 (Grand Avenue) HC = 40', VC = 18' 08"
MP 0.92(12th Avenue) HC = 41', VC > 25'
MP 1.36 (21th Avenue) HC = 56', VC = 22' 06"
MP 1.74 (28th Avenue) HC = 46' 06", VC = 16'
MP 2.16 (33rd Avenue) HC = 48', VC = 17' 06"
MP 2.40 (Sandy Blvd.) HC = 45' 03", VC = 15' 10"
MP 2.55 (39th Avenue) HC = 46' 06", VC = 15' 11"
MP 2.68 (Pedestrian walkway) HC = 64', VC = 16'
MP 2.98 (47th Avenue) HC = 46' 02", VC = 16' 05"
MP 3.35 (53rd Avenue) HC = 34' 10", VC = 16' 06"
MP 3.69 (60th Avenue) HC = 51'08", VC = 16' 05"
MP 4.26 (Halsey St.) HC = 50' 05", VC = 16' 02"
MP 4.57 (74th Avenue) HC = 46' 06", VC = 16' 10"
MP 4.93 (Halsey St.) HC = 46' 03", VC = 16' 05"
MP 5.01 (Cascade Hwy) HC = 47' 06", VC = 16' 11"
MP 5.65 (I-205 NB off ramp) HC = 53', VC = 26' 06"
MP 5.67 (Trimet light rail) HC = 50', VC = 35'
MP 5.74 (I-205 SB) HC= 30', VC = 17' 06"
MP 5.76 (I-205 NB) HC= 30', VC = 17' 06"
MP 5.86 (Halsey St.) HC = 37', VC = 17' 06"
MP 6.74 (102nd Ave.) HC = 39' 06", VC = 18' 03"

Vertical Grades:

MP 0.02 - Crest: -4.65%;
MP 0.31 - Crest: -6.97%

3-5% Greater than 5%

Horizontal Curves:

MP 0.00 - 6.00; MP 0.11 - 8.80
MP 2.00 - 5.8; MP 3.12 - 3.50

Greater than 3^ 15'

Shoulder Widths:

Greater than 12' 12' to 8' Less than 8'

Study Area Boundary

LEGEND

- Location of Interchanges
- PORTAL Detector Location (Year 2007 Data)
- PORTAL Detector Location (Detector data missing or questionable)
- (####.#) M.P. of PORTAL Detector (near the approximate on-ramp gore point)
- Activation Range: This is the segment which contains the start of a new/confounding bottleneck (this does not encompass all congestion; see Bottleneck Description)
- Bottleneck Influence Area - Cross reference # with Key Statistics: Initial Data Results
- Mainline bottleneck concern

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Figure 11
Bottleneck Study
I-84 EB AM & PM Bottlenecks

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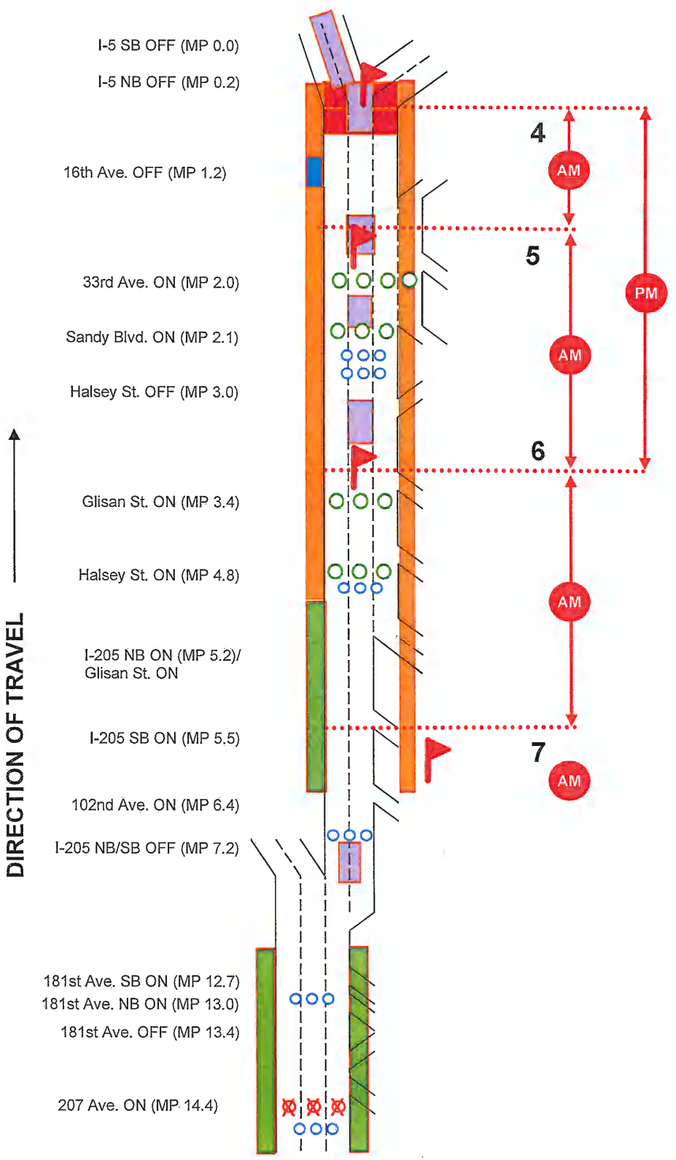
Revision: 2
Purpose: Design Review

6/20/2011

I-84 Westbound

Study Area Boundary



Location of Interchanges	Distance Between
33rd Avenue (MP 2.17)	
	0.25 miles
Sandy Blvd. (MP 2.42)	
	2.53 miles
Halsey St. (MP 4.95)	
	1.79 miles
102nd Ave (MP 6.74)	
	6.29 miles
181st Avenue (MP 13.03)	
	1.39 miles
207th Ave. (MP 14.42)	

Ramp Gore Points	Distance Between
Merge with I-5 SB (MP 0.00)	
	0.20 miles
I-5 NB off ramp (MP 0.20)	
	0.99 miles
16th Ave. off ramp (MP 1.19)	
	0.86 miles
33rd Ave. on ramp (MP 2.05)	
	0.09 miles
Sandy Blvd. on ramp (MP 2.14)	
	0.88 miles
Halsey St. off ramp (MP 3.02)	
	0.36 miles
Glisan St. on ramp (MP 3.38)	
	1.42 miles
Halsey St. on ramp (MP 4.80)	
	0.37 miles
I-205 NB on ramp (MP 5.17)	
	0.34 miles
I-205 SB on ramp (MP 5.51)	
	0.88 miles
102nd on ramp (MP 6.39)	
	0.83 miles
I-205 NB/SB off ramp (MP 7.22)	
	5.49 miles
181st Ave. SB on ramp (MP 12.71)	
	0.33 miles
181st Ave. NB on ramp (MP 13.04)	
	0.34 miles
181st Ave. off ramp (MP 13.38)	
	0.98 miles
207th Ave. on ramp (MP 14.36)	

Clearance at Structures:

MP 0.39 (MLK Blvd.) HC = 35', VC = 15' 03"
MP 0.44 (Grand Ave.) HC = 40'; VC = 18'03"
MP 0.92 (12th Ave.) HC = 46', VC = 19' 09"
MP 1.36 (21th Ave.) HC = 58' 06", VC 22' 07"
MP 1.74 (28th Ave.) HC = 58' 06", VC = 16' 02"
MP 2.17 (33rd Ave.) HC = 46', VC = 17'
MP 2.42 (Sandy Blvd.) HC = 46' 03", VC = 16' 04"
MP 2.55 (39th Ave.) HC = 46', VC = 16' 06"
MP 2.69 (Pedestrian walkway) HC = 46' 02", VC = 16' 01"
MP 2.99 (47th Ave.) HC = 42', VC = 16' 08"
MP 3.36 (53rd Ave.) HC = 34' 10", VC = 17' 03"
MP 3.71 (60th Ave.) HC = 46' 04", VC = 20' 07"
MP 4.26 (Halsey St.) HC = 46'08", VC = 16' 04"
MP 4.59 (74th Ave.) HC = 45' 11", VC = 16' 07"
MP 4.95 (Halsey St.) HC = 46' 03", VC = 18'
MP 5.01 (Cascade Hwy) HC = 46' 06", VC = 17'
MP 5.64 (I-205 NB on ramp) HC = 38', VC = 24' 06"
MP 5.67 (Trimet light rail) HC = 38', VC = 24' 06"
MP 5.76 (I-205 SB) HC = 30', VC = 17' 06"
MP 5.78 (I-205 NB) HC = 30', VC = 17' 06"
MP 5.87 (Halsey st.) HC = 31', VC = 33'
MP 6.74 (102nd Ave) HC = 29', VC = 15' 03"
MP 14.42 (207th Ave) HC = 74', VC = 21' 07"

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Horizontal Curves:

MP 0.00 - 4.00; MP 0.28 - 9.75
MP 0.40 - 6.00; MP 1.73 - 5.75
MP 2.01 -6.00 ; MP 3.13 - 3.50
MP 6.98 - 3.50

Greater than 3^ 15'

Study Area Boundary

LEGEND

- Location of Interchanges
- PORTAL Detector Location (Year 2007 Data)
- PORTAL Detector Location (Detector data missing or questionable)
- (###.#) M.P. of PORTAL Detector (near the approximate on-ramp gore point)
- Activation Range: This is the segment which contains the start of a new/confounding bottleneck (this does not encompass all congestion; see Bottleneck Description)
- Bottleneck Influence Area - Cross reference # with Key Statistics: Initial Data Results
- Mainline bottleneck concern

Vertical Grades:

MP 0.21 - Crest: -6.19%; MP 0.32 - Crest:6.86%
MP 0.36 - Sag: -5.51%;

3-5% | Greater than 5%

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Figure 12
Bottleneck Study
I-84 WB AM & PM Bottlenecks

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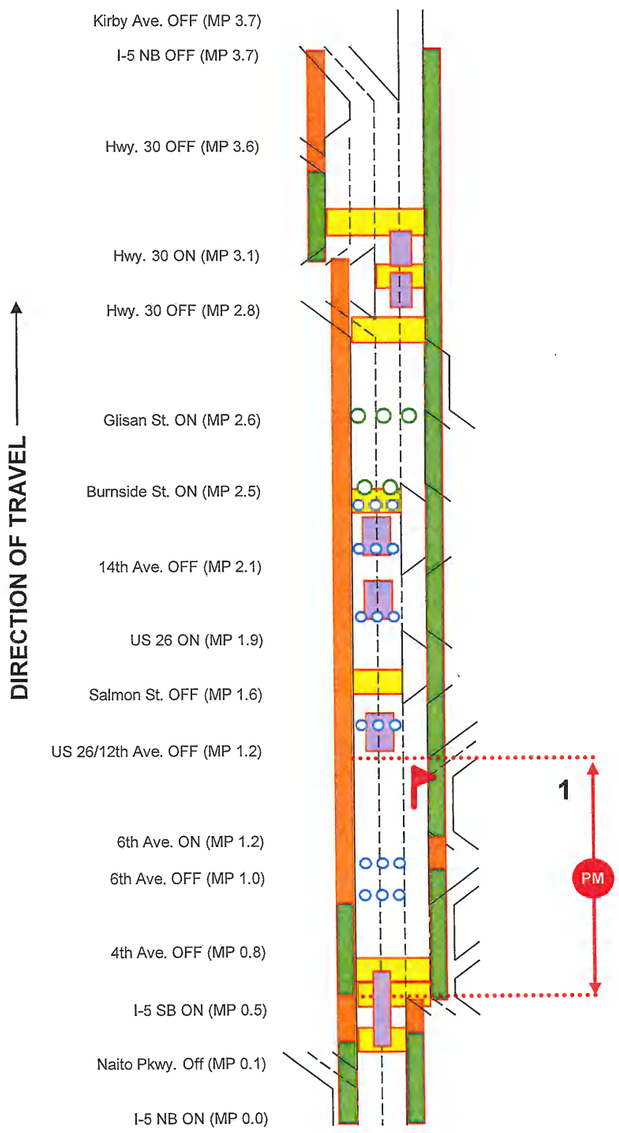
Revision: 2
Purpose: Design Review

6/20/2011

I-405 Northbound

Study Area Boundary



Location of Interchanges	Distance Between
Glisan Street (MP 2.45)	0.20 miles
Couch Street (MP 2.25)	0.31 miles
Salmon Street (MP 1.94)	0.48 miles
12th Avenue (MP 1.46)	0.33 miles
6th Avenue (MP 1.13)	0.17 miles
4th Avenue (MP 0.96)	

Clearance at Structures:

MP 3.10 (Fremont Bridge (2 decks)) HC = 52', VC = 18' 04"
MP 2.45 (Glisan St.) HC = 51', VC = 15' 10"
MP 2.35 (Everett St.) HC = 39', VC = 17' 09"
MP 2.25 (Couch St) HC = 39', VC = 19' 09"
MP 2.20 (Burnside) HC = 63', VC = 16' 02"
MP 2.15 (14th Ave.) HC = 49', VC = 19' 01"
MP 2.12 (Alder st.) HC = 50', VC = 17' 08"
MP 2.07 (Morrison St.) HC = 51'. VC = 22' 06"
MP 2.02 (Yamhill St.) HC = 60', VC = 25' 09"
MP 1.97 (Taylor St.) HC = 50', VC = 20' 10"
MP 1.96 (Taylor St. SB on ramp) HC = 50', VC = 20' 10"
MP 1.92 (Salmon St.) HC = 50', VC = 20' 07"
MP 1.87 (Salmon St. off ramp) HC = 50', VC = 16' 08"
MP 1.77 (Jefferson St.) HC = 38', VC = 16' 03"
MP 1.72 (Columbia St.) HC = 38', VC = 19' 08"
MP 1.67 (Clay St.) HC = 38', VC = 17' 08"
MP 1.62 (Market St.) HC = 52', VC = 20' 06"
MP 1.56 (I-26 WB off ramp) HC = 50', VC >18'
MP 1.55 (13th Ave.) HC = 50', VC = 16' 05"
MP 1.52 (Montgomery St.) HC = 50', VC = 17' 01"
MP 1.40 (12th Ave.) HC = 46', VC = 38' 07"
MP 1.19 (Park Ave.) HC = 61', VC = 17' 03"
MP 1.12 (Broadway) HC = 46', VC = 19' 11"
MP 1.10 (Broadway I-405 SB on ramp) HC = 46', VC = 19' 11"
MP 1.03 (6th Ave.) HC = 53', VC = 16' 06"
MP 1.00 (5th Ave.) HC = 57' 04", VC = 19' 08"
MP 0.99 (th Ave. I-405 SB on ramp) HC = 58', VC = 16"
MP 0.89 (4th Ave.) HC = 67', VC = 18' 02"
MP 0.71 (1st Ave.) HC = 67', VC = 18' 04"
MP 0.66 (Hwy 99W) HC = 66', VC = 15' 06"

Ramp Gore Points	Distance Between
Hwy 30 on ramp (MP 3.08)	0.32 miles
Hwy 30 off ramp (MP 2.76)	0.14 miles
Glisan St. on ramp (MP 2.62)	0.17 miles
Burnside on ramp (MP 2.45)	0.34 miles
14th Ave. off ramp (MP 2.11)	0.51 miles
Salmon St. off ramp (MP 1.60)	0.36 miles
US 26/12th Ave. off ramp (MP 1.24)	0.07 miles
6th Ave. on ramp (MP 1.17)	0.22 miles
6th Ave. off ramp (MP 0.95)	0.20 miles
4th Ave. off ramp (MP 0.75)	

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Horizontal Curves:

MP 3.03 - 9.00; MP 2.94 - 8.00; MP 2.23 - 4.00;
MP 2.00 - 6.00: MP 1.45 - 4.50; MP 0.70 - 4.00;
MP 0.39 - 8.00

Greater than 3^ 15'

Study Area Boundary

LEGEND

- Location of Interchanges
- PORTAL Detector Location (Year 2007 data)
- PORTAL Detector Location (Detector data missing or questionable)
- (###.#) M.P. of PORTAL Detector (near the approximate on-ramp gore point)
- Activation Range: This is the segment which contains the start of a new/confounding bottleneck (this does not encompass all congestion; see Bottleneck Description)
- Bottleneck Influence Area - Cross reference # with Key Statistics: Initial Data Results
- Mainline bottleneck concern

Vertical Grades:

MP 3.32 - Crest: -5.00%; MP 3.04 - Sag: 5.00%
MP 2.80 - Sag: 3.59%; MP 2.48 - Sag: 5.00%
MP 1.68 - Crest: -3.60%; MP 0.76 - Crest: 4.08%
MP 0.71 - Sag: 4.60%; MP 0.66 - Sag: 4.59%
MP 0.38 - Sag: 3.92%

3-5% | Greater than 5%

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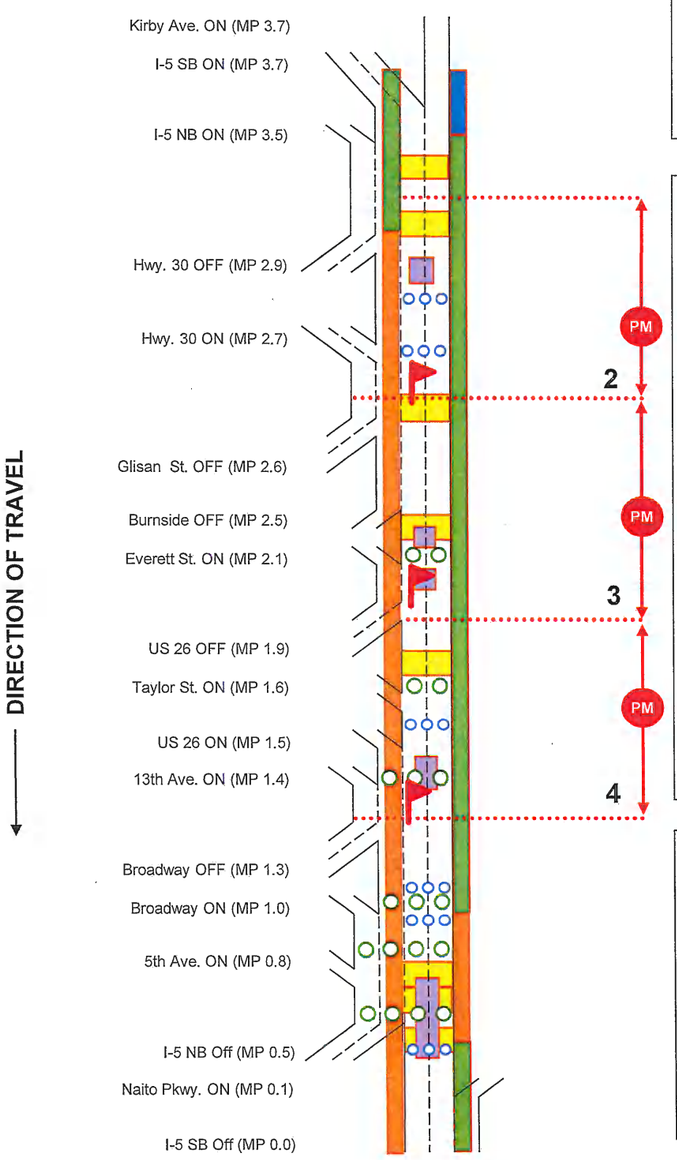
Figure 13
Bottleneck Study
I-405 NB AM & PM Bottlenecks

I-405 Southbound

Study Area Boundary



Location of Interchanges	Distance Beween
Glisan St. (MP 2.83)	
Burnside (MP 2.69)	0.14 miles
Montgomery St. (MP 1.52)	1.17 miles
Broadway (MP 1.11)	0.41 miles
5th Ave. (MP 1.00)	0.11 miles
W Marquam intchge. connection (MP 0.27)	0.73 miles

Clearance at Structures:

MP 3.58 (N Fremont Bridge (2 decks)) HC = 68', VC = 18' 04"
MP 3.10 (S Fremont Bridge (2 decks)) HC = 52', VC = 18' 04"
MP 2.45 (Glisan St.) HC = 51', VC = 16' 03"
MP 2.35 (Everett St.) HC = 39', VC = 18' 06"
MP 2.25 (Couch St.) HC = 39', VC = 18' 06"
MP 2.20 (Burnside) HC = 39', VC = 16' 02"
MP 2.14 (14th Ave.) HC = 45', VC = 23' 02"
MP 2.12 (Alder St.) HC = 48', VC = 22' 03"
MP 2.07 (Morrison st.) HC = 51', VC = 25' 05"
MP 2.02 (Yamhill) HC = 51', VC = 26' 08"
MP 1.97 (Taylor St.) HC = 50', VC = 19' 08"
MP 1.96 (Taylor St. on ramp) HC = 50', VC = 18' 01"
MP 1.92 (Salmon St.) HC = 50', VC = 20' 02"
MP 1.88 (Salmon St. NB off ramp) HC = 50', VC = 17' 05"
MP 1.77 (Jefferson St.) HC = 41', VC = 17'
MP 1.72 (Columbia St.) HC = 38', VC = 19' 09"
MP 1.68 (Clay St.) HC = 37', VC = 17' 10"
MP 1.62 (Market St.) HC = 37', VC = 19' 10"
MP 1.56 (I-405 NB off ramp) HC = 46', VC > 18'
MP 1.55 (13th Ave.) HC = 46', VC = 16' 04"
MP 1.52 (Montgomery St.) HC = 46', VC = 16' 10"
MP 1.41 (12th Ave.) HC = 46', VC = 24' 10"
MP 1.18 (Park Ave.) HC = 53', VC = 19' 10"
MP 1.11 (Broadway) HC = 51', VC = 23' 02"
MP 1.10 (Broadway SB off ramp) HC = 51', VC = 16' 01"
MP 1.03 (6th Ave.) HC = 39', VC = 19' 07"
MP 1.00 (5th Ave.) HC = 60', VC = 20' 01"
MP 0.99 (5th Ave. on ramp) HC = 65' 06", VC = 15' 11"
MP 0.88 (4th Ave.) HC = 64', VC = 17' 02"
MP 0.71 (1st Ave.) HC= 75', VC = 16' 01"

Ramp Gore Points	Distance Between
Hwy 30 off ramp (MP 2.88)	
Hwy 30 on ramp (MP 2.68)	0.20 miles
Glisan st. off ramp (MP 2.64)	0.04 miles
Burnside off ramp (MP 2.45)	0.19 miles
Everett St. on ramp (MP 2.10)	0.35 miles
Hwy 26 off ramp (MP 1.88)	0.22 miles
Taylor St. on ramp (MP 1.55)	0.33 miles
Hwy 26 on ramp (MP 1.41)	0.14 miles
13th Ave. on ramp (MP 1.36)	0.05 miles
Broadway off ramp (MP 1.29)	0.07 miles
Broadway on ramp (MP 0.95)	0.34 miles
5th Ave. on ramp (MP 0.80)	0.15 miles
I-5 NB off ramp (MP 0.77)	0.03 miles

Shoulder Widths:

Greater than 12' | 12' to 8' | Less than 8'

Vertical Grades:

MP 3.32 - Crest: -5.00%; MP 3.03 - Sag: 5.00%
MP 2.61 - Crest: 3.94%; MP 2.48 - Sag: 5.00%
MP 1.68 - Crest: -3.60%; MP 0.76 - Crest: 4.08%
MP 0.71 - Sag: 4.60%; MP 0.58 - Crest: 3.71%
MP 0.49 - Sag: 4.10%

3-5% | Greater than 5%

Horizontal Curves:

MP 2.91 - 7.00; MP 2.23 - 4.00; MP 2.00 - 6.00
MP 1.45 - 4.50; MP 0.70 - 4.00; MP 0.54 - 8.00
MP 0.42 - 8.75

Greater than 3^ 15'

Study Area Boundary

LEGEND

- Location of Interchanges
- PORTAL Detector Location (Year 2007 data)
- PORTAL Detector Location (Detector data missing or questionable)
- (###.#) M.P. of PORTAL Detector (near the approximate on-ramp gore point)
- Activation Range: This is the segment which contains the start of a new/confounding bottleneck (this does not encompass all congestion; see Bottleneck Description)
- Bottleneck Influence Area - Cross reference # with Key Statistics: Initial Data Results
- Mainline bottleneck concern

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Figure 14
Bottleneck Study
I-405 SB AM & PM Bottlenecks

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